

AGE

UNIVERSITY  
PENNSYLVANIA  
LIBRARIES







CITY OF PHILADELPHIA MUNICIPAL PIERS 3, 5, 9, AND 11  
DOCUMENTING THE DEVELOPMENT OF PHILADELPHIA'S  
EARLY TWENTIETH CENTURY PORT

Cloantha Wade Copass

A THESIS

in

The Graduate Program in Historic Preservation

Presented to the faculties of the University of Pennsylvania in Partial Fulfillment of the  
Requirements for the Degree of

MASTER OF SCIENCE

1992

*Christa Wilmanns-Wells*

Dr. Christa Wilmanns-Wells, Lecturer in Historic Preservation, Advisor

*David G. De Long*

Dr. David G. De Long, Professor of Architecture, Graduate Group Chairman and Reader

FINE ARTS / NA / 02 / 1992 / 10761

UNIVERSITY  
OF  
PENNSYLVANIA  
LIBRARIES

Copyright 1992 by Cloantha Wade Copass. All rights reserved.





## TABLE OF CONTENTS

LIST OF FIGURES .....	iii
LIST OF PLATES .....	iv
ACKNOWLEDGEMENTS .....	v
INTRODUCTION .....	1
CHAPTER ONE: Pre-Twentieth Century Port Development.....	4
CHAPTER TWO: Pier 11: The Race Street Pier.....	23
CHAPTER THREE: Pier 9: The Cherry Street Pier.....	42
CHAPTER FOUR: Managing the Modern Port.....	52
CHAPTER FIVE: Piers 3 and 5: The Girard Group Piers .....	63
CHAPTER SIX: Continuity and Change at the Philadelphia Waterfront.....	75
CONCLUSIONS .....	82
FIGURES .....	85
PLATES .....	104
BIBLIOGRAPHY .....	115



## ACKNOWLEDGMENTS

The encouragement and advice provided by my advisor, Dr. Christa Willmanns-Wells, were critical to the successful completion of this thesis. Her enthusiasm for this topic helped me continue to make progress throughout the course of this year-long project. It was truly a privilege to work with a professor who is so dedicated to her students.

Dr. David De Long's initial interest in the topic encouraged me to pursue it, and his helpful suggestions as reader were appreciated.

Bill Alesker of Alesker, Reiff, and Dundon, Architects kindly provided access to materials in his firm's archives which documented the rehabilitation of Piers 3 and 5.

Jeff Moak of the Philadelphia City Archives directed me to the numerous city records which proved critical to this project.

My parents introduced me to Seattle's waterfront, past and present. As I shifted my focus east to study the history of Philadelphia's port, I have benefited greatly from both their support and editorial assistance.

Finally, thanks to Wally White for commuting.



## LIST OF FIGURES

FIGURE 1.1	The Blue Anchor Tavern.....	86
FIGURE 1.2	Warehouse at corner of Delaware Avenue and Race Street .....	86
FIGURE 1.3	Adam Ritters' map of the Delaware River Waterfront.....	87
FIGURE 1.4	Paul Beck's 1820 Plan for Delaware River Wharves.....	88
FIGURE 1.5	Philadelphians Skating on the Delaware River, 1856 .....	89
FIGURE 1.6	Pier 8 at Cherry Street circa 1880.....	89
FIGURE 2.1	Delaware Avenue, North from Market Street, circa 1890.....	90
FIGURE 2.2	Chestnut Street Pier, circa 1920.....	91
FIGURE 2.3	Race Street Pier, 1914.....	91
FIGURE 2.4	Substructure of Race Street Pier, 1901.....	92
FIGURE 2.5	Race Street Pier, 1901.....	92
FIGURE 2.6	Race Street Pier in <i>A Plan for the City of Seattle</i> , 1911 .....	93
FIGURE 2.7	Race Street Pier in <i>A Plan for the City of Seattle</i> , 1911 .....	93
FIGURE 2.8	Race Street Pier Pavilion, 1902 .....	94
FIGURE 2.9	Steeplechase Pier at Atlantic City .....	95
FIGURE 2.10	Fireboat "Edwin S. Stuart" at Race Street Pier, 1908 .....	95
FIGURE 2.11	Mayor Moore at Reopening of Race Street Pier, 1931 .....	96
FIGURE 3.1	Delaware River Waterfront, 1914.....	97
FIGURE 4.1	Diagram of cargo handling process.....	98
FIGURE 4.2	Diagram of vessel loaded with general cargo.....	98
FIGURE 4.3	Illustration of Burtoning method.....	99
FIGURE 4.4	Burtoning system in use .....	99
FIGURE 4.5	Hand truck and electric truck in use .....	100
FIGURE 4.6	Pier interior loaded with cargo .....	101
FIGURE 5.1	View of the Girard Group Piers, 1923.....	102
FIGURE 5.2	Cross section of Southwark Pier.....	103
FIGURE 5.3	Plan of Southwark Pier .....	103



## LIST OF PLATES

PLATE 1	Race Street Pier, west facade.....	105
PLATE 2	Race Street Pier, south facade.....	105
PLATE 3	Race Street Pier, corner column detail.....	106
PLATE 4	Race Street Pier, west facade, doorway detail.....	107
PLATE 5	Race Street Pier, west facade, cornice detail.....	108
PLATE 6	Pier 9, west facade and connection to Pier 5 .....	109
PLATE 7	Pier 9, north facade doors and monitor .....	109
PLATE 8	Pier 9, west facade, left corner.....	110
PLATE 9	Pier 5, west facade.....	111
PLATE 10	Pier 3, south facade.....	111
PLATE 11	Pier 3, south facade, view of outshore tower .....	112
PLATE 12	Pier 3, south facade, detail of cargo masts.....	113
PLATE 13	Cargo shed north of Pier 5.....	114
PLATE 14	Former United Fruit Company Offices.....	114





## INTRODUCTION

From the arrival of the first European settlers onward, Philadelphia's Delaware River shoreline has witnessed a tremendous flow of goods and travellers. Historically, the waterfront functioned as the center of travel, trade, and commerce. Today, physical and visual barriers such as high chain link fences and Interstate 95 sever the waterfront's connection to center city. Consequently, one could easily forget that the central waterfront once served as Philadelphia's front door.

Waterfront place names invoke the historic significance of the port. "Penn's Landing" recalls the founding of the city, and the very name of the "Port of History Museum" asserts the historical importance of the harbor. However, the dominant features of the contemporary waterfront, such as the promenades and parking lots of the Penn's Landing project and the retaining walls of Interstate 95, reveal no evidence of the colonial port.

While the colonial waterfront remains only for archaeologists to explore, one can find physical evidence of more recent eras of port history. South of Penn's Landing, railroad tracks traverse short distances before disappearing under paving at the river's edge, forests of pilings appear under the surface of the river as a wave recedes, and long concrete platforms, overgrown with dense vegetation, jut into the river. More intact physical documents of the port's history remain immediately north of Penn's Landing. Between Market and Race Streets, four piers extend from Delaware Avenue into the river. Peeling paint, rusted metal, and crumbling concrete show the age of two of these piers. The other two piers feature newly cleaned and painted facades and fly banners offering luxury apartments and condominiums. However, the



architectural style of these buildings, and the dates displayed on the front facades, indicate that these are older structures.

This thesis studies the history of these four piers, which date to a twenty-five year period between 1898 and 1923. Because the written record of the port's history is fragmented, this thesis draws on information from a wide variety of primary materials such as maps, port publications, city records, and photographs to document the construction, function and use of these piers.

This thesis examines the significance of the four piers within their particular technological, political, and economic contexts. Establishing a contextual framework for the construction of these piers was a key aspect of this study. Chapter One provides an overview of port development trends prior to the twentieth century, with an emphasis on the historical circumstances and factors which encouraged port development over time.

Chapter Two documents the development and use of Pier 11 at Race Street from 1901 until the city substantially renovated it in 1931.<sup>1</sup> Also known as the "City Pleasure Pavilion," the Race Street Pier housed many uses, including recreation programs and a summer children's hospital. Chapter Three discusses the increasing role of municipal government in waterfront development and the construction of Pier 9 at the foot of Cherry Street during World War I as part of Philadelphia's contribution to the war effort.

In recognition of the fact that the piers were part of a complex cargo handling system, a fourth chapter utilizes texts written in the early 1920s about the emerging

---

<sup>1</sup>Pier 11 was known as Pier 10 until 1931, at which time it was renumbered Pier 11 to conform to a new numbering system which assigned all piers north of Market Street an odd number and all piers south of Market Street an even number. For the sake of consistency, this thesis refers to the pier as Pier 11.



"science" of port management to explain the design and function of sophisticated cargo piers built in the 1920s. Chapter Five addresses the construction of Piers 3 and 5, built as a pair between 1921 and 1923, and relates the design of these piers to the cargo management theories described in Chapter Four.

The present conditions of the piers studied for this thesis range from dilapidated to rehabilitated. Therefore, a final chapter discusses the piers' significance today as surviving early twentieth century port structures. This chapter also examines current trends in waterfront planning and explores how future waterfront redevelopment plans might incorporate the themes and ideas which emerged from studying the history of these four piers.



## CHAPTER ONE

### PRE-TWENTIETH CENTURY PORT DEVELOPMENT

The construction of Piers 3, 5, 9, and 11 during the first quarter of the twentieth century followed two hundred years of Philadelphia port development. This initial chapter presents an overview of the history of the port from Philadelphia's founding to the end of the nineteenth century. Although Philadelphia's port played an important role in the city's emergence as a commercial and industrial center in the nineteenth and early twentieth centuries, the history of the port of Philadelphia has not been well documented.<sup>1</sup> Information from maps, port publications, early port development plans, and historical descriptions of the city supplements existing secondary sources.

The purpose of a port is to facilitate the transfer of goods and passengers between water transportation systems, typically ships, and surface transportation systems, such as railroads or trucks.<sup>2</sup> At a port, goods might also be transferred between different types of water transportation, such as large ocean-going ships and smaller canal boats. The specific form of the wharves, buildings, and equipment which accommodate this process depends on the physical, technological, political and economic forces which have shaped a particular port over time.<sup>3</sup>

---

<sup>1</sup>Francis Burke Brandt, *The Majestic Delaware: The Nation's Foremost Historic River*. (Philadelphia: Brandt and Gumm, 1929); Philip Chadwick Foster Smith, *Philadelphia on the River* (Philadelphia: The Philadelphia Maritime Museum, 1986); David Budlong Tyler, *The Bay and River Delaware: A Pictorial History* (Cambridge, Md: Cornell Maritime Press, 1955) are collections of illustrations of river and harbor over time, accompanied by brief explanatory notes. Hugh Norman Emerson's *Eighty-Eight Nautical Miles on the Delaware: A History of the Philadelphia Maritime Exchange 1875-1950*, (Philadelphia, 1950) looks at the activity of the Maritime Exchange, with an emphasis on their efforts to improve the Delaware River for shipping. Histories of other ports which provided information about the Philadelphia port as well as national port development trends include: Robert G. Albion, *Rise of the New York Port, 1815-60* (New York: Scribners, 1939); Padraic Burke, *History of the Port of Seattle* (Seattle: Port of Seattle, 1976); Anne Bittenweiser, *Manhattan Water-Bound* (New York: NYU Press, 1987); and Edwin J. Clapp, *Port of Boston* (New Haven: Yale Press, 1916).

<sup>2</sup>Clapp, 4.

<sup>3</sup> Marc J. Hershman and Robin Scott Bittner, "Ports in History," in Marc J. Hershman, ed. *Urban Ports and*





Physical and technical factors set the fundamental constraints on the location of a port and its layout. The shelter of a bay or the confluence of two rivers may determine the site of a port. Technology influences the ability to modify and utilize the existing physical resources. For example, a city with the technical ability to dredge a deeper channel in a river can make its port accessible to larger vessels. In turn, the size of vessels using the port will determine the type of docking facilities constructed. The layout of a port also reflects both the types of cargo handling systems used and the connections with inland transportation systems. The modern practice of shipping cargo in standardized containers which trucks can move on land has resulted in the construction of new port facilities on vast tracts of land with convenient access to the interstate highway system.

Multiple layers of government typically regulate development at a port. While state laws may determine the ownership of submerged land, federal navigation laws determine how far structures may extend into waterways. When a government owns and operates port facilities, a political process influences whether and how the port develops. Economic conditions determine the availability of public and private resources for port development as well as influencing the trade patterns which in turn affect the utilization of a port.

Identifying the major phases of Philadelphia's waterfront development requires assessing how these physical, technological, political and economic factors have shaped Philadelphia's port over time. This chapter examines four eras of port development and planning in Philadelphia prior to the turn of the century. The first section considers the conditions of the Philadelphia port in the colonial era. The second section discusses various proposals for port improvements made between 1800 and 1850, while the third section focuses on changes in markets, shipping, and shoreline development between 1850

---

*Harbor Management* (New York: Taylor and Francis, 1988), 31.



and 1880. A final section outlines a series of political changes in the port management which took place in the late nineteenth century and paved the way for the major port redevelopment project initiated in the 1890s.

## **The Colonial Port**

The Delaware River played a key role in Philadelphia's development even before William Penn founded the city. Penn considered Philadelphia's location between the Delaware and the Schuylkill rivers a significant aspect of its future prospect as a city. When Penn received title to the land, a tavern called "The Blue Anchor" already stood near the confluence of Dock Creek with the Delaware River.<sup>4</sup> [Figure 1.1] The inn's very name suggested a maritime orientation. In fact, the small inlet Dock Creek created where it cut down through the bank of the Delaware River provided sheltered moorage in Philadelphia's first harbor. By 1685, better anchorage was needed, and the first private dock was erected between Chestnut and Walnut Streets.<sup>5</sup>

William Penn planned Philadelphia so that its buildings would be set well apart on spacious lots to prevent fire from spreading from house to house. However, instead of following Penn's new urban vision, businesses and residences of the fast growing town tended to cluster along the riverfront in a traditional European pattern.<sup>6</sup> Penn had also intended that Philadelphia have a publicly owned waterfront.<sup>7</sup> He wrote that "against the

---

<sup>4</sup>John F. Watson, *Annals of Philadelphia* (Philadelphia: 1830) Watson's Annals, 121-124.

<sup>5</sup>Watson, 124.

<sup>6</sup>Brian Hoyle, "Development Dynamics at The Port-City Interface," in B.S. Hoyle, D. A. Pinder and M.S. Hussain, eds. *Revitalizing the Waterfront: International Dimensions of Dockland Redevelopment* (London: Belhaven Press, 1988), 7. Hoyle noted that the pattern of a medieval cityport was an urban center dominated by merchants' houses with the waterfront being the focal point of the settlement as a whole.

<sup>7</sup>Philadelphia City Planning Commission, *Central Riverfront District Plan* (Philadelphia: 1982), 12. Also, George Webster, *Development of the Delaware River Waterfront*. Reprinted from: *The Proceedings of the Engineers' Club of Philadelphia*, Volume XIX (1902), 1-2.



streets common wharves may be built freely; but into the water, and the shore, is no purchaser's."<sup>8</sup> In spite of Penn's original wishes, between 1684 and 1691, patents were issued for riverfront lots east of Front Street.<sup>9</sup>

The city gained its first waterfront street after the owners of riverfront property petitioned for the removal of building height limits imposed by their original patents. The council granted their request, but as a condition of receiving a variance from the restriction on their patents, these owners were required to leave thirty feet of ground clear for a perpetual public cartway.<sup>10</sup> This cartway, known as Water Street, provided access to waterfront shops and residences, as well as to the Arch Street ferry, which began service to New Jersey in 1695.<sup>11</sup>

To reach Philadelphia from the Atlantic ocean, a ship's captain had to navigate one hundred and ten statute miles (eighty-eight nautical miles) up the Delaware River. The presence of shallow alluvial islands complicated the passage. The directions for sailing into Philadelphia offered by the *American Coast Pilot*, a navigation guide for ship captains, convey a sense of the last few miles of the journey:

When you have passed between these islands, steer E by N two miles when you must haul up NE by N for Glousceter PT, distant 1 mile from which you must keep your larboard hand best on board and steer N 3 miles which will carry you opposite Philadelphia.<sup>12</sup>

In an era when ships provided the most efficient form of transportation for both passengers and cargo, Philadelphia's distance from the sea did not hinder its success as a

---

<sup>8</sup>Webster, 1.

<sup>9</sup>Webster, 1.

<sup>10</sup>Webster, 1.

<sup>11</sup> Smith, 57.

<sup>12</sup>Capt. Lawrence Furlong, *American Coast Pilot*, Fourth edition (Newburyport, Mass.: Edmund M. Blunt, 1815), 182.



port. Historically, the richest ports had not been ocean ports. Rather, the most prosperous ports were those located in rich agricultural areas linked to the sea by navigable water.<sup>13</sup> With its access to inland trade routes and the agricultural bounty of the Delaware and Schuylkill River valleys, Philadelphia fit the description of a well-situated port.<sup>14</sup> Even as roads extended inland, the Delaware River and the Atlantic Ocean carried most of Philadelphia's trade.<sup>15</sup> Philadelphia provided advantages in addition to its inland connections. A 1753 George Heap view of the city listed these advantages as an adequate water depth even at low tide, a spacious harbor, and an absence of the ship worms which ravaged the hulls of wooden ships in salt water ports.<sup>16</sup>

Philadelphia's Quaker merchants had a significant impact on the city's rapid emergence as a commercial center. The religious and social ties Philadelphia Quaker traders shared with their Quaker associates in other ports strengthened trade networks. Many leading Philadelphia Quaker families had marriage ties to Quakers in key trade centers such as Madeira, London, Barbados, and New York.<sup>17</sup> In the Quakers' able hands, trade volume grew during the eighteenth century, sometimes quite rapidly. During the French and Indian War, the value of goods imported tripled, reaching £700,000 in 1760.<sup>18</sup>

While trade with other North American colonies provided the bulk of Philadelphia's harbor traffic, the city enjoyed significant foreign trade networks.<sup>19</sup> Ships full of grain,

---

<sup>13</sup>Gordon Jackson, *History and Archaeology of Ports* (Surrey: World's Work, 1983), 12.

<sup>14</sup> Jackson, 12.

<sup>15</sup>Theodore Thayer, "Town into City, 1746-1765," in *Philadelphia: A Three Hundred Year History* (New York: W.N. Norton Co., 1982), 74.

<sup>16</sup>Tyler, 16.

<sup>17</sup>Frederick B. Tolles, *Meeting House and Counting House* (Chapel Hill: University of North Carolina, 1948), 90-91.

<sup>18</sup>Thayer, 75.

<sup>19</sup>Thayer, 74.





meat, lumber, iron, skins, and furs departed for England and the West Indies while imports such as West Indian rum and molasses and English wool cloth arrived in Philadelphia.<sup>20</sup> The development of trade with the East Indies in the late eighteenth century generated great interest in Philadelphia. The sailing ships which served this trade were known as East Indiamen. When an East Indiaman neared the port, a cannon five miles down river would herald its approach, drawing merchants and curious onlookers to the waterfront.<sup>21</sup>

Human cargos of slaves, indentured servants and free immigrants constituted a lucrative part of Philadelphia's shipping trade. In 1749, for example, seven thousand immigrants made the difficult seven-week crossing from Germany to Philadelphia, and another thousand immigrants arrived from Britain and Ireland.<sup>22</sup> The slave trade was not as extensive in Philadelphia as in other colonial cities, due to opposition from Quaker merchants. After 1715, a Quaker could be expelled from his Meeting for importing slaves.<sup>23</sup> Although slave trading declined among Quakers, other merchants continued to import slaves.<sup>24</sup>

The booming shipping trade created a demand for more wharfs and buildings to house port-related activities. Consequently, in the first half of the eighteenth century, the Philadelphia waterfront witnessed more waterfront construction than any other American port.<sup>25</sup> Along the central waterfront, a low wooden bulkhead shored up the river's bank. Wharves, which were typically short uncovered wooden platforms, jutted out from the bulkhead. Because the weather determined the schedules of wind-powered sailing ships, schedules could not be predicted with any certainty. Consequently, merchants had to store

---

<sup>20</sup>Thayer, 74.

<sup>21</sup>Adam Ritter, *Philadelphia and Her Merchants* (Philadelphia: 1860), 23.

<sup>22</sup>Thayer, 74.

<sup>23</sup>Tolles, 88.

<sup>24</sup>Thayer, 75.

<sup>25</sup>Thayer, 74.



goods for some time while awaiting the arrival of a ship or inland transportation, and cargo cluttered the Philadelphia waterfront. Remarkably, Water Street was so narrow that ships had to alter their riggings so traffic could pass along the street under the prows which jutted out over the street.<sup>26</sup> In 1704, in an attempt to bring some order to the waterfront, the Common Council of Philadelphia adopted rules to keep the public areas of the waterfront clear and open so people could move freely along the cartway.<sup>27</sup>

Businesses such as shipbuilders, merchants, and ship's outfitters clustered near the waterfront. [Figure 1.2] Adam Ritter, a Philadelphia merchant, described the waterfront neighborhoods as he remembered them in the 1790s. Ritter drew maps of the waterfront which document the location and ownership of businesses and buildings along Front and Water Streets. His map for the area between Race and Arch Streets shows a juxtaposition of ship chandlers, dry goods merchants, and lodgings with the counting houses of wealthy merchants.<sup>28</sup> [Figure 1.3] By 1750, Philadelphia with twelve shipyards, became the shipbuilding center of the colonies. Blacksmiths, ropewalks, and sail lofts located at the waterfront provided essential components for the ships.<sup>29</sup>

Ritter's memoirs illustrate that while the port was the city's commercial center, it was also "sailortown." Inexpensive lodgings and beer houses catering to sailors were interspersed among the merchants' counting houses.<sup>30</sup> In addition to the rowdy businesses catering to sailors, open sewers discharging at the shoreline and the fear of disease contributed to the waterfront's negative image. Creeks flowing along the present courses of Dock Street and Arch Street served as city sewers, draining directly into the river.

---

<sup>26</sup>Smith, 64.

<sup>27</sup>*Central Riverfront District Plan*, 12.

<sup>28</sup>Ritter, inset maps.

<sup>29</sup>Thayer, 75.

<sup>30</sup>Ritter, 112.



Additionally, people associated the waterfront with epidemics because the ships whose cargos brought Philadelphia prosperity could bring pestilence as well. Yellow fever, a new disease to which colonists had low resistance, typically broke out near the river.<sup>31</sup> In 1741 and again in 1747, yellow fever killed many Philadelphians. Unaware that mosquitoes transmitted the fever, people struggled in vain to control the epidemics.<sup>32</sup> During the 1747 outbreak, the members of the Pennsylvania Council wrote a letter to the proprietor pointing out that the fever invariably began in the mud and filth around the docks and asked for assistance in alleviating this condition.<sup>33</sup> However, the proprietor refused their request, stating that the fever was not connected to the unsanitary conditions at the waterfront. Yellow fever reappeared along the waterfront in 1762 and again in 1793 after a thirty year hiatus.<sup>34</sup> Ritter recounted that, as with earlier outbreaks, the yellow fever of 1793 first appeared among the wharf residents.<sup>35</sup>

Philadelphia's trade declined during the Revolutionary War. However, the port's trade volume expanded rapidly once the war ended. Neither growth nor technological change significantly altered the physical form of the harbor during this era. However, early experiments with steam engines foreshadowed future developments in shipping. On July 14, 1790, the world's first regularly scheduled steamboat service began, making a run from Philadelphia's Arch Street ferry landing to Trenton, New Jersey, at the pace of eight miles an hour.<sup>36</sup> Philadelphia experienced another steamboating first in June, 1809, when the first steam powered ship to successfully complete a deep-sea passage arrived in Philadelphia after a twelve day trip down the New Jersey coast and up the Delaware River.

---

<sup>31</sup>John Duffy, *Epidemics In Colonial America*, (Baton Rouge, 1953), 151, 159.

<sup>32</sup>Duffy, 138.

<sup>33</sup>Duffy, 159.

<sup>34</sup>Duffy, 161-63.

<sup>35</sup>Ritter, 26.

<sup>36</sup>Smith, 65.



At this point, however, steam remained an experimental source of energy, and was utilized primarily as a supplement to sail as a source of power.<sup>37</sup>

## 1800 to 1850

Until British attacks during the War of 1812 curtailed American shipping along the Atlantic Seaboard, Philadelphia's port had the nation's highest trade volume.<sup>38</sup> When a treaty reopened the coast to British trade, Boston, Philadelphia, and New York City vied for shipping business.<sup>39</sup> New York City enjoyed a competitive advantage because, unlike the Delaware River, its harbor did not freeze in the winter. Completion of the Erie Canal in 1825 ensured the preeminence of New York's port, because the canal gave New York unrivaled access to the goods and markets of the country's western frontier.<sup>40</sup> Even before the opening of the Erie Canal, significant Philadelphia businesses, such as the silk importers, had moved to New York City.<sup>41</sup> Concerned Philadelphians believed that for their city to maintain its status as a major port, they would have to improve the waterfront. Consequently, in the early nineteenth century, Philadelphians proposed various strategies for altering the harbor.

In 1803, the Pennsylvania General Assembly created a regulatory authority specifically responsible for the Philadelphia port. Appointed by the governor, the Board of Port Wardens' responsibilities included licensing pilots and setting the rates ships could be charged for docking in Philadelphia.<sup>42</sup> The Board of Port Wardens had no authority to

---

<sup>37</sup>Albion, "Fuel Powered Vessels," in *Encyclopedia American* (New York: Grolier, 1986), 731.

<sup>38</sup>Albion, *Rise of the New York Port* (New York: Charles Scribner's Sons, 1939), 5.

<sup>39</sup>Albion, *Rise of New York*, 5.

<sup>40</sup>Albion, *Rise of New York*, 5, and Lewis M. Haupt, *Port of Philadelphia*, Reprinted from *Journal of the Franklin Institute* (1892), 2.

<sup>41</sup>Ritter, 26.

<sup>42</sup>*Digest of the Laws, Decisions and Rules Relating to the Board of Wardens for the Port of Philadelphia*. Assembled by Christian Ross, Master Warden (Philadelphia, 1892), 9.





regulate the physical layout of the harbor. Consequently, owners of waterfront land developed wharves, warehouses and buildings as suited them. Water Street's narrow width provided inadequate room for access to the wharves and waterfront businesses, and this hampered the delivery of merchandise.<sup>43</sup>

Traffic congestion along the waterfront and the fear of yellow fever outbreaks in the crowded quarters of the waterfront prompted one proposal for waterfront redevelopment. In 1820, Philadelphia merchant Paul Beck, Jr. published a plan for the waterfront between Vine and Spruce Streets titled "A Proposal for Altering the Eastern Front of the City of Philadelphia with a view to prevent the recurrence of Malignant Disorders on a Plan conformable to the Original Design of William Penn, by a Citizen of Philadelphia."<sup>44</sup> Observing that malignant fever "always commences in the neighborhood of the wharves," Beck asserted that disease could only be prevented by making major changes to the waterfront.<sup>45</sup> He also claimed that in addition to preventing disease, his plan would benefit the city by eliminating waterfront bars and reducing the risk of fire.

Beck proposed the city purchase all private property between Front Street and the Delaware River, from Vine Street to Spruce Street. The city could then construct three-story warehouses seventy-five feet inland from the shore. Each building would contain four "stores" measuring one hundred feet by forty feet. A stone wall would retain the eastern side of Front Street, where the land sloped down to the river.<sup>46</sup> [Figure 1.4] Interestingly, the plan did not propose any changes to the piers. At Beck's request, William Strickland estimated that the total construction cost would be \$651,000. Beck recognized

---

<sup>43</sup>Bullenweiser, 35, 58.

<sup>44</sup>Paul Beck, Jr., *A Proposal for Altering the Eastern Front of the City of Philadelphia with a view to prevent the recurrence of Malignant Disorders on a Plan conformable to the Original Design of William Penn, by a Citizen of Philadelphia* (Philadelphia, 1820).

<sup>45</sup>Beck, 1.

<sup>46</sup>Beck, inset map.



that the public might not approve of the city's spending the estimated \$1,693,640 to purchase the necessary waterfront land. Consequently, Beck described an alternative fund-raising strategy used in Boston. To build a similar project, fifty Bostonians had pooled their resources to build an extensive complex of wharves and warehouses. Beck suggested that even if Philadelphians did not support his entire plan as a municipal project, the city should at least require new waterfront construction to conform to his guidelines.<sup>47</sup>

In the end, neither the city nor private investors adopted Beck's plan after merchant Stephen Girard, one of the principal waterfront landholders, blocked its serious consideration.<sup>48</sup> Although Girard disapproved of Beck's plan, he did agree that the waterfront needed substantial improvement. At his death in 1831, Girard left Philadelphia \$500,000 to improve and maintain a broad waterfront avenue.<sup>49</sup> Girard stated that the money should be used to:

Lay out, regulate, curb, light, and pave a passage or street on the east part of the city of Philadelphia, fronting the river Delaware, not less than twenty-one feet wide, and to be called Delaware Avenue, extending from Vine to Cedar Streets.<sup>50</sup>

The City of Philadelphia used Girard's money to remove the old wooden bulkheads and buildings along the east side of Water street, and widen the road eastward to create a twenty-five foot wide road between Vine and South Streets. The city named this new street Delaware Avenue.

Although New York continued to dominate foreign trade, Philadelphia prospered as a regional commercial and transportation center. By 1828, a dozen steam ferries connected

---

<sup>47</sup>Beck, 5, 8.

<sup>48</sup>Smith, 62-3.

<sup>49</sup>Smith, 62-3.

<sup>50</sup>Webster, 2.



Philadelphia and Camden. While these ferries ran only during daylight hours and in good weather, they provided an important link between Philadelphia and New Jersey's communities and rich agricultural lands.<sup>51</sup>

In addition to functioning as the city's commercial center, the Delaware River waterfront was also the focus of both summer and winter recreation activities. Residents could find cooler temperatures along the waterfront than in other parts of the city, so visits to the river provided a welcome respite from the summer heat. Smith's Island, located in the river just opposite Market Street, offered additional summer recreation activities. Starting in the summer of 1812, people could ride a small steamer from Chestnut Street out to the island. At Smith's Island, they enjoyed swimming in the floating bath house, eating meals at the restaurant and listening to concerts in the beer garden.<sup>52</sup> Cold weather would also bring people to the waterfront. When the Delaware froze over, Philadelphians would skate and play on the river.<sup>53</sup> [Figure 1.5]

## 1850 to 1880

In his 1857 book, *Philadelphia and its Manufactures*, Edwin T. Freedley observed that the port saw an increase in traffic in 1857 in spite of a weak national economy.<sup>54</sup> He reported that in 1857, 505 foreign vessels and 32,241 domestic ships arrived at the port, bringing 11.8 million dollars worth of imports to the port and carrying away exports such as flour, corn, and 4.3 million tons of coal.<sup>55</sup>

---

<sup>51</sup>Smith, 48.

<sup>52</sup>Smith, 52, 84-5.

<sup>53</sup>Smith

<sup>54</sup>Freedley, *Philadelphia and Its Manufactures*, (Philadelphia: Edward Young, 1858), 73.

<sup>55</sup>Freedley, 74.



In the mid-nineteenth century, the boiler systems for steamships became reliable enough that ships began using steam as a primary source of power rather than an auxiliary to sail. In 1838, a British ship made the first steam-powered crossing of the Atlantic ocean. The fifteen day length of the steamship crossing, compared to a typical three to five week trip by sail, demonstrates the advantages steamships offered of predictable schedules and speed.<sup>56</sup> However, because the coal or wood used to fire the boilers consumed the ships' cargo space, steamships were used primarily for short coastal voyages and river trips rather than trans-oceanic crossings.<sup>57</sup> Furthermore, the cargo capacity of sailing ships was more important than the speed of steamships for most intercontinental routes. The introduction of the compound engine in the late 1860s reduced coal consumption of steamships. With additional room freed for a payload, steamships became profitable cargo carriers. By 1900, most sailing ships had been displaced to routes where coal was difficult to obtain.<sup>58</sup> [Figure 1.6]

Until the mid-nineteenth century, goods shipped into Philadelphia travelled inland up the Delaware or Schuylkill Rivers on smaller vessels or overland on wagons. Completion in 1835 of Pennsylvania's "Main Line," a three hundred and ninety-five mile canal and railroad system connecting Philadelphia and Pittsburgh, improved the efficiency of overland transportation.<sup>59</sup> The railroads linked Philadelphia not only to western Pennsylvania, but provided access, through Pittsburgh, to the nation's interior.<sup>60</sup> Completion of the Pennsylvania Railroad in 1852 further improved Philadelphia's inland connections.<sup>61</sup>

---

<sup>56</sup>Peter Kemp, *Encyclopedia of Ships and Seafaring* (New York: Crown Publishers, 1980), 46.

<sup>57</sup>Kemp, 46.

<sup>58</sup>Kemp, 46.

<sup>59</sup>Albion, *Rise of New York*, 417.

<sup>60</sup>Freedley, 119.

<sup>61</sup>Freedley, 119.





The railroads provided an alternative to wagons or canal boats as a method of transporting goods to and from Philadelphia. However, because no direct link existed between the railroads and the ships, cargo headed for the port had to be removed from the railroad cars and transferred to wagons to reach the docks.<sup>62</sup> The traffic on Delaware Avenue exceeded the capacity of the narrow road, and between 1857 and 1867, the City of Philadelphia widened Delaware Avenue between Vine and South Streets from twenty-five feet to fifty feet.<sup>63</sup>

Passenger traffic also contributed to the congestion along the waterfront. Ferries to Camden departed from the Market Street wharf, and steamers serving coastal ports and towns along the Delaware River crowded the river as well.<sup>64</sup> The 1860's *Stranger's Guide to Philadelphia* reports that one could travel by steamer daily to New York, Baltimore, Trenton, Wilmington, Salem, Chester, Newcastle, Bridgeton, Burlington, and Bristol.<sup>65</sup> During the summer "bathing season," additional steamers ran to Cape May, and special ferries carried passengers to riverside railroad stations in New Jersey where they boarded trains heading to resorts on the Jersey Shore.<sup>66</sup>

To avoid the crowded waterfront facilities, some ships unloaded their cargoes into railroad cars carried on barges. These barges then carried the railroad cars to a rail yard located away from the central waterfront for assembly into trains. Cargo was also transferred from ships onto covered barges called lighters. Specialized cargo handling equipment, such as grain elevators, was also mounted on barges and taken out to the ships in the harbor.<sup>67</sup>

---

<sup>62</sup>Smith, 46

<sup>63</sup>Webster, 4.

<sup>64</sup>Smith, 54.

<sup>65</sup>*Strangers' Guide to Philadelphia*, (Philadelphia: Lindsay & Blackstone, 1860) 255.

<sup>66</sup>*Jackson's Philadelphia Year Book, 1920-21*. (Philadelphia: Joseph Jackson, 1920), 88.

<sup>67</sup>Smith, 67.



In the mid-nineteenth century, a national economic downturn prompted some Philadelphians to express concern about the city's low level of foreign trade. Surprisingly, not everyone agreed that improving trade should be a priority for the city. In *Philadelphia and her Manufactures*, Freedley attributed the decline of foreign imports to the city's focus on the growing coal trade.<sup>68</sup> Instead of seeing this situation as a cause for alarm, Freedley thought Philadelphia's lack of dependence on imported manufactures demonstrated the city's growing success as a manufacturing center. Freedley wrote:

Philadelphia does not covet the distinction of being a great importing mart. She would be content if other cities monopolized the doubtful honor of importing hither French gimcracks and German clothes in exchange for gold and silver, provided their merchants were encouraged to devote their energies successfully and uninterruptedly to building up Home Industry and American manufacture.<sup>69</sup>

In spite of Freedley's analysis, Philadelphia did try to attract more foreign trade. European shipping lines completely dominated the trans-Atlantic routes. In the 1850s, national efforts to create an American trans-Atlantic steamship line focused on New York, where federal subsidies supported the four steamships of the Collins Line. However, in 1858, Congress withdrew the funding and the line ceased operations.<sup>70</sup> Seeing an opportunity, some Philadelphians thought establishing a new trans-Atlantic line would enable the city to capture the trans-Atlantic market and foreign trade would grow. In 1859, a Philadelphia port booster outlined such a proposal in a booklet entitled "A Review of the Relative Commercial Progress of the Cities of New York and Philadelphia tracing the Decline of the Latter to State Development and Showing the Necessity of Trans-Atlantic

---

<sup>68</sup>Freedley, 78-81.

<sup>69</sup>Freedly, 89.

<sup>70</sup>Frank Bayard, "Fuel Powered Vessels," in *Encyclopedia Americana* (New York: Grollier Inc.: 1986), 734-5.



Steamship Communication to Re-establish Foreign Trade." The author wrote that "without a shipping line, further commercial progress is impossible, and. . . recession is inevitable."<sup>71</sup> The Civil War interfered with ongoing planning for such a line, and Philadelphia did not have regular, direct steamship service to Europe until the Pennsylvania Railroad-backed "American Line" began in the 1870s.<sup>72</sup>

### **Consolidation of Port Management**

The state-appointed Board of Port Wardens had run the Philadelphia port from 1803 onward. Starting in 1854, a series of changes took place in the governance of the port as the state expanded the scope of the Board's authority and increased the City of Philadelphia's role in harbor management. In 1854, the Pennsylvania General Assembly took the first step to increasing municipal control over the harbor when it transferred the power of selection of members of the Board of Port Wardens from the state to the City of Philadelphia. The Board of Port Wardens also gained the responsibility for reviewing port construction proposals and grant permits for pier construction.<sup>73</sup> In 1856, the Board of Port Wardens utilized its new powers to ensure that wharves would not impede the waterway by placing a ninety-foot limit on the distance a pier could extend from shore.<sup>74</sup>

Private and public agencies, formed in the 1870s and focused on the port, demonstrated a growing interest in port development issues. In 1875, a group of businessmen founded the Philadelphia Maritime Exchange to "promote and encourage the

---

<sup>71</sup>Harold P. Liversidge (Chairman of the board of Philadelphia Electric Company) September 22, 1953 speech, titled, "The Importance of the Port and Foreign Trade to the Philadelphia Area." Temple University Urban Archives.

<sup>72</sup>David B. Tyler, *The American Clyde* (Wilmington: University of Delaware Press, 1958), 30-31.

<sup>73</sup>*Ports Governance Study* (Philadelphia, 1980), 9.

<sup>74</sup>*Digest of Laws*, 8.



commerce of the Port of Philadelphia."<sup>75</sup> Four years later, in 1879, the City of Philadelphia passed an ordinance establishing a City Board of Harbor Commissioners. The city directed the Harbor Commissioners to assess the port and recommend plans for improvements to the harbor.<sup>76</sup> The regulatory authority of the Board of Port Wardens continued to increase. In 1885, the Board gained the authority to set standards for pier construction, and, most significantly, the ability to improve, construct, alter, maintain, purchase or condemn waterfront lands.<sup>77</sup> While the Board of Port Wardens did not act immediately to use most of its new powers, it did set standards for pier construction in 1887.<sup>78</sup>

The existence of Smith and Windmill islands in the river immediately opposite the central waterfront constrained the development of long piers in that busy part of the port. In 1887, the Philadelphia Maritime Exchange petitioned the United States Congress to study the removal of these islands.<sup>79</sup> Several years later, the city gained title to the islands and began removing them in 1894.<sup>80</sup> An Act of Congress had transferred control over pier lengths in navigable waterways to the Secretary of War in 1879. Finally, in 1891, the Secretary of War extended the pier head line to five hundred and fifty feet along Philadelphia's central waterfront, thus allowing for much longer wharves.<sup>81</sup> These new regulations of the late nineteenth century and the extension of city authority represent benchmarks in the development of the port of Philadelphia because they enabled the

---

<sup>75</sup>Frank Taylor, *Handbook of the Lower Delaware River*, (Philadelphia: Philadelphia Maritime Exchange), 37.

<sup>76</sup>Haupt, 16.

<sup>77</sup>Central Philadelphia Waterfront District Plan, 14.

<sup>78</sup>Rules and Regulations, 5.

<sup>79</sup>In 1879, control of construction in navigable water had been granted to the United States Army Corps of Engineers. Bittenweiser, 82.

<sup>80</sup>Smith, 85.

<sup>81</sup>Haupt, 16.





significant municipal investments which would shape the port from that time onward.

One observer described the waterfront of the late nineteenth century as "unfavorable to the development of commerce."<sup>82</sup> Between Vine and South Streets, traffic on Delaware Avenue resulted "in frequent blockades and great delay to shippers."<sup>83</sup> To rectify this situation, Philadelphia businessmen involved with maritime commerce proposed the widening of Delaware Avenue and installation of railroad tracks along the waterfront for the "expeditious and economical" handling of freight.<sup>84</sup> In the 1870s, Boston's Union Freight Railroad had linked all principal railroads with the main wharfs along Boston's waterfront.<sup>85</sup> Other cities, including Philadelphia, considered Boston's rail system a model and strove to develop similar rail lines.

Development of a waterfront railroad in Philadelphia began with the chartering of the Philadelphia Belt Line Railroad Company in 1889.<sup>86</sup> To guarantee access to the waterfront for all freight haulers, the Philadelphia Board of Trade and the Commercial Exchange of Philadelphia held fifty-one percent of the stock in the company.<sup>87</sup> In December, 1890, the City Council granted the company a right-of-way on Delaware Avenue to the Belt Line, and construction began shortly thereafter.<sup>88</sup>

In the last decade of the nineteenth century, the development of larger, more reliable steamships wrested the shipping trade from the sailing ships. Nationally, this transition in shipping along with the increasing mechanization of cargo handling changed ports dramatically. Recognizing these changes, Philadelphia began to redevelop its port

---

<sup>82</sup>Webster, 7.

<sup>83</sup>Webster, 7.

<sup>84</sup>*Philadelphia Maritime Exchange Annual Report 1907* (Philadelphia, 1907), 19.

<sup>85</sup>Clapp, 151.

<sup>86</sup>*Port of Philadelphia Day* (Port of Philadelphia Day Committee: June 1940), 33; and Webster, 4.

<sup>87</sup>*Port of Philadelphia Day*, 33.

<sup>88</sup>*Port of Philadelphia Day*, 33.



facilities. The city focused its attention on two undertakings. One project, widening Delaware Avenue to ease congestion and create direct railroad access to the piers, provided important infrastructures which would support both public and private pier construction efforts. The other project was the construction of municipal piers. The rapid pace of waterfront change in the years between 1896 and 1923 resulted in the construction of piers, including 3, 5, 9, and 11, which varied widely depending on the date of their construction.



## CHAPTER TWO: THE RACE STREET PIER

In 1895, the Philadelphia Maritime Exchange hired journalist Frank H. Taylor to write a pamphlet promoting the port facilities of the lower Delaware River. This booklet, titled: "Handbook to the Lower Delaware River," described the conditions at the port in the late nineteenth century. Taylor stressed the port's potential to grow, observing that Philadelphia utilized only half of its available shoreline for port facilities.<sup>1</sup> Taylor praised the port for its plentiful, inexpensive coal and its access to inland transportation links. He also observed that since forty percent of the nation's population lived within three hundred miles of Philadelphia, the city provided merchants with access to many potential consumers.<sup>2</sup>

Taylor's laudatory booklet did not include a description of the physical conditions along Philadelphia's central waterfront. However, other sources indicate that by the 1890s, the fifty-foot width of Delaware Avenue could not efficiently accommodate the waterfront traffic. Carts loaded with cargo and luggage headed to and from the wharves, and pedestrians, whether they were commuters enroute to the ferries or shoppers at waterfront businesses, traversed the avenue. Lines of wagons waiting to unload or load cargo blocked freight stations for long periods of the day and made it difficult for pedestrians to cross to the ferries and other piers.<sup>3</sup> [Figure 2.1] Obviously, widening Delaware Avenue would be a necessary element of port improvement.

In 1896, Philadelphia initiated a waterfront improvement project which provided an unprecedented amount of municipally-funded port infrastructure and facilities. The project began in March, 1896 when the Philadelphia City Council passed an ordinance authorizing

---

<sup>1</sup>Frank Taylor, *Handbook of the Lower Delaware River*, (Philadelphia: Philadelphia Maritime Exchange, 1895), 15.

<sup>2</sup>Taylor, 7.

<sup>3</sup>*Mayor's Annual Message*, 1899, Volume II, 336; Webster, 36.



the widening of Delaware Avenue between Vine and South Street from fifty feet to one hundred and fifty feet. The council also approved the construction of piers on city land at the ends of Arch Street, Chestnut Street and Race Street. To finance this two million dollar improvement project, the city borrowed money and used the interest earned on the waterfront improvement fund Stephen Girard had bequeathed to the city in 1832.<sup>7</sup>

In the 1890s, four and five story buildings lined the west side of Delaware Avenue. Consequently, the city widened the avenue by pushing fill material eastward into the river. Owners of existing piers on the east side of Delaware Avenue received, as compensation, enough money to move their structures outward to the new bulkhead line<sup>8</sup> Along the shoreline, the depth of the river varied from four feet to twenty feet, and the river bottom consisted of ten to forty feet of mud over underlying soil. Since mud makes an unstable foundation, the engineers stabilized the area by dredging the silty mud and driving piles to consolidate the remaining base material. A concrete bulkhead was built on top of a timber platform supported by the pile foundation. The space behind the bulkhead was filled with earth and stone, and the bulkhead was faced with granite.<sup>9</sup> The Delaware Avenue improvement project provided a much needed opportunity to improve Philadelphia's sewer systems as well. The sewers' outflows, which discharged effluent right at the shoreline, were extended out to the ends of the piers. With the completion of the widening project in

---

<sup>4</sup>*Mayor's Annual Message*, 1901, 441.

<sup>5</sup>*Mayor's Annual Message*, 1901, 441.

<sup>6</sup>*Mayor's Annual Message*, 1901, 441.

<sup>7</sup>*Mayor's Annual Message*, 1901, 441.

<sup>8</sup>Webster, 7.

<sup>9</sup>*Mayor's Annual Message*, 1898, Volume 1, 254-60.





1899, conditions at the waterfront improved significantly.<sup>10</sup> Wagons could finally pass quickly, speeding the process of moving freight through the port.<sup>11</sup>

Simultaneous to widening Delaware Avenue, the city began constructing three municipal piers. The Arch Street Pier was a wooden single-story enclosed cargo pier. The Chestnut and Race Street Piers combined two functions. Each provided public recreation facilities in a pavilion on the upper level and dock space for ships on the lower level. [Figures 2.2, 2.3] The city built these recreation piers with the intent that the piers would be "as great a benefit to the comfort, health, and pleasure of the general public as the numerous small parks scattered about the city."<sup>12</sup> The first recreation pier, at Chestnut Street, was completed in 1896 and demolished in 1921. The second recreation pier, at Race Street, opened in 1901. Although significantly altered, it remains standing.

Plans for the Race Street pier met with initial difficulty. From at least the 1860s onward, an open wooden wharf had occupied the ninety-foot street end at Race Street.<sup>13</sup> The city's application in 1897 for a permit to replace this old wharf generated controversy and a lawsuit.<sup>14</sup> An 1868 act of the Pennsylvania General Assembly had mandated that anyone wishing to construct a pier on a riverfront property must leave forty feet of shoreline frontage on either side of the new pier.<sup>15</sup> This rule was enacted in order to prevent someone from building a pier across the entire width of his property, leaving the neighbors without adequate moorage space. The Act stated that anyone who wanted to

---

<sup>10</sup>Mayor's Annual Message, 1899, 336.

<sup>11</sup>Webster, 36.

<sup>12</sup>Mayor's Annual Message, 1899, 336.

<sup>13</sup>Robert Looney, *Old Philadelphia in Early Photographs* (New York: Dover Publications, 1976), 36-7.

<sup>14</sup>Mayor's Annual Message, 1897, 36.

<sup>15</sup>Court of Common Pleas No. 1 in the County of Philadelphia of March Term No. 428. Petition of Alice B. Willing from decision of Port Wardens of March 7, 1898 to construct a Pier in the River Delaware at the Foot of Race Street; Court of Common Pleas No. 1 in the County of Philadelphia of March Term No. 429. Petition of J.H Morris, and Isidor Levin from decision of Port Wardens of March 7, 1898 to construct a Pier in the River Delaware at the Foot of Race Street.



build a pier which did not provide forty feet of frontage on either side had to petition the Board of Port Wardens for a variance and compensate the adjacent property owners.<sup>16</sup> At Race Street, the city intended to build an eighty-foot wide pier on ninety feet of waterfront frontage. Obviously, leaving a five-foot margin on either side of the pier could hinder the ability of the adjacent property owners to build their own piers.

In March 1898, the Board of Port Wardens approved the city's application to construct a pier at the foot of Race Street. Owners of the adjacent frontage to the south, Alice B. Willing, J. Morris and R.H. and Isidor Levin, filed lawsuits in an attempt prevent the city from carrying out its plans.<sup>17</sup> The court agreed with the city that "public convenience demands a variance from this rule [forty-foot setbacks] in this particular case."<sup>18</sup> However, the court declared that owners to the south should receive compensation as provided for by the 1868 act. Their compensation would be a share of the revenue from the profits on moorage rentals on the south side of the new Race Street Pier. The Chief Engineer of the Philadelphia Department of Public Works, George S. Webster, estimated that the plaintiffs' share in the rental income from the south side of the Race Street pier would be about \$2,000 per year.<sup>19</sup>

While the court case was delaying the start of construction at Race Street, contractors completed the Chestnut Street Pier.<sup>20</sup> In 1899, the court settled the lawsuits over the Race Street Pier and construction finally began. The Bureau of Surveys, which oversaw the construction process, divided the work into two phases and granted a separate contract for each phase. Construction started with the substructure, which was the wooden

---

<sup>16</sup>Petition of Alice B. Willing.

<sup>17</sup>Petition of Alice B. Willing.

<sup>18</sup>Petition of Alice B. Willing.

<sup>19</sup>*Mayor's Annual Message*, 1899, 339.

<sup>20</sup>*Mayor's Annual Message*, 1899, 339.



platform, supported by pilings, upon which other contractors would construct the pier building. The firm of Armstrong & Printzenhoff received the contract for the substructure.<sup>21</sup> [Figure 2.4] In August 1900, the city awarded the contract for the two story pier building, to the construction firm of Ryan and Kelley, which had bid \$105,000 for the work.<sup>22</sup> Construction began on the upper part of the pier, known as the "superstructure," in October 1900. [Figure 2.5] Because fire constantly threatened waterfront buildings, the design of the Race Street Pier provided it with more fire resistance than typical wooden piers.<sup>23</sup> Its steel frame, iron sides, an iron ceiling and a concrete and cement roof earned it a "fireproof" rating from insurers.<sup>24</sup>

The plan of the pier separated its recreation and shipping functions onto different levels. [Figures 2.6, 2.7] From Delaware Avenue a large central doorway provided access to the first story pier shed. Stairs on the right and left sides of the facade led up from the street to the second level deck and pavilion.<sup>25</sup> Pressed metal ornaments such as a cornice and square pilasters with pedestals and capitals decorated the facade of the pier. Below the cornice, a band of small-paned metal sash let light into the interior and the stairwells.

The first story shed enclosed a space eighty feet wide and five hundred and thirty-nine feet long. This space housed the Delaware River Police and Fire Service and provided access to boats which docked at the pier. Four wharf drops--the hoists used to maneuver

---

<sup>21</sup>*Mayor's Annual Message*, 1899, 339.

<sup>22</sup>*Mayor's Annual Message*, 1899, 339; Research in Philadelphia city directories identified the principles of this firm as John A. Kelley and Jason J. Ryan. The firm is listed from 1898 to 1908. The 1909 directory shows that the firm had divided to become, the John A. Kelley Co., and Ryan and Reilly. The business records of Ryan and Kelly, if located, may provide more information about the firm's role in the pier construction.

<sup>23</sup>Roy S. MacElwee, *Ports and Terminal Facilities* (New York: McGraw Hill, 1918), 126.

<sup>24</sup>1915 *Hexamer Atlas of the City of Philadelphia*.

<sup>25</sup>The collections of the Philadelphia City Archives and the Free Library contain photographs of the pier. The Atwater Kent Museum has one image of the pier in the late 1920s, and the Library Company's collection documenting the construction of Pier 9 include images of Pier 10. Additionally, Webster reproduces several construction photos and interior views.



the loading ramps which crossed between the boats and the pier--were located on either side of the pier. The river end of the pier, also known as the "outshore" end, remained open to the air. On the outshore end, another wharf drop stood ready to unload passengers and cargo.<sup>26</sup>

The second story of the pier contained an expansive deck and a spacious pavilion. The landward end of the pier, called the inshore end, contained two canopy-covered stairwells. These provided access to the street level. A waist-high iron fence enclosed the deck. The recreation pavilion occupied the outshore end of the pier.<sup>27</sup> A steel frame sheathed with a copper roof formed the arched interior space.<sup>28</sup> [Figure 2.8] The sides remained open, and two large hanging electric light fixtures illuminated the interior. Square towers incorporating an eclectic variety of architectural elements anchored the four corners of the pavilion. The towers at the inshore end of the pavilion projected only slightly above the roof level. The towers at the outshore end rose three stories above the deck of the pavilion. One of the towers served as an observation tower, where the public could watch the activity of the harbor. The other tower provided a place for fireboat crews to dry their wet hoses.<sup>29</sup> Narrow projecting bands divided the towers into stories as they rose above the pavilion. The first and third story window openings were rectangular with arched tops. The second story had small square windows, while the fourth floor observatory featured generous square windows. Each tower terminated in a pyramidal roof with flagpoles at the apex.<sup>30</sup>

---

<sup>26</sup>See Note 25.

<sup>27</sup>*Mayor's Annual Message*, 1901, 443.

<sup>28</sup>See Note 25.

<sup>29</sup>Webster, 36.

<sup>30</sup>See Note 25.





After the contractors completed the pier in the fall of 1901, the city installed a plaque which read "Recreation Pier #2, Designed and Built by the City of Philadelphia."<sup>31</sup> The pier became a popular recreation site and a source of pride for the city. In fact, a 1908 newspaper article described the pier the "best the city owns."<sup>32</sup> The Race Street Pier also caught the eye of people outside Philadelphia. For example, Virgil Bogue, a noted transportation engineer and city planner from New York, included an image of the Race Street Pier as one of his illustrations of exemplary city facilities in his 1911 *Plan for City of Seattle*.<sup>33</sup>

From 1901, when the pier opened, until 1919 when structural problems led the city to close the upper deck, the "Pleasure Pavilion" on the Race Street Pier housed a variety of functions.<sup>34</sup> The better documented of these activities are its uses as a recreation center for urban youth and as a summer hospital for infants. The summer hospital and recreation program will be described in detail below. First, however, an explanation of the cultural and historical context of recreation piers and public amusement at the turn of the century will place the Philadelphia pier in a broader, national context.

At the turn of the century, cities witnessed the emergence of a new mass culture, spurred by increasing numbers of urban workers with leisure time and discretionary income.<sup>35</sup> Many civic reformers held a vision of the city as a place of monumental

---

<sup>31</sup>See Note 25.

<sup>32</sup>Source not identified, dated September 9, 1908. From the Perkins Collection of the Historical Society of Pennsylvania.

<sup>33</sup>Virgil G. Bogue, *Plan for the City of Seattle* (Seattle, 1911). Ross Anderson's article "Metropolis," in *Pacific Magazine*, July 7, 1991, 6-12, cited the Bogue reference. The New York City Historical Society holds the Bogue family papers. However, these papers pertain primarily to Bogue's brother Morton, and provide no information about the source of Bogue's knowledge of the pier. See also the *Dictionary of American Biography* entry on Bogue, and Bogue's obituary in the *New York Times*, October 16, 1916.

<sup>34</sup>The 1915 *Hexamer Atlas of the City of Philadelphia* uses this name for the pier.

<sup>35</sup>John F. Kasson, *Amusing the Millions*, (New York: Hill and Wang, 1978); Kathy Peiss, *Cheap Amusements: Working Women and Leisure New York City 1880-1920* (Philadelphia: Temple University Press, 1986.), 41.



architecture and instructive amusement, exemplified by the buildings of the White City at Chicago's 1893 World's Columbian Exposition. However, popular attractions, which "embraced the heterogeneous and boisterous present" drew thousands of visitors.<sup>36</sup>

One of the new forms of popular entertainment was visiting seaside resorts and amusement parks, such as Coney Island and Atlantic City.<sup>37</sup> The seaside resorts offered cooler temperatures, a chance to swim, and above all, varied and exciting entertainment. Both Coney Island and Atlantic City had amusement piers. These piers, which extended out into the surf to catch the cool breezes, supported pavilions which housed rides, shows, restaurants, dance floors, and other active amusements. The piers also provided covered outdoor seating where people could find more passive entertainment such as sitting and watching the activity on the beach and in the water.<sup>38</sup> Philadelphia's Race Street Pier on the Delaware River, with its covered pavilion and deck for activities and with its observation tower and outdoor seating area for watching the waterfront, provided both the active and passive recreation opportunities typical of other amusement piers.

The ornate and fanciful architecture of the recreation piers played an important role in the piers' appeal to visitors. By creating an atmosphere which provided people with a sense of visiting an exotic place, amusement pier designers intended to remove visitors from their ordinary experiences. [Figure 2.9] While the pavilion on the Race Street Pier was less elaborate than some of the fantasies constructed by private entrepreneurs at the seaside resorts, it successfully conveyed this exotic imagery.<sup>39</sup> Furthermore, the pier's central location at the port, amidst the arriving and departing ships, would have certainly

---

<sup>36</sup>Kasson, 25-6.

<sup>37</sup>Kasson documents the history of Coney Island. For a history of Atlantic City see Charles E. Funnell, *By the Beautiful Sea: The Rise and High Times of That Great American Resort, Atlantic City* (New York: Alfred A. Knopf, 1975).

<sup>38</sup>Funnell, 13, and 121-3.

<sup>39</sup>Kasson, 63.



brought its own realistic flavor to an excursion or travel fantasy. The gangways, promenade deck, and open pavilion contributed to a sense of being on a luxurious ship, albeit one which did not leave its mooring.<sup>40</sup>

Philadelphia's waterfront actually was the take off point for Atlantic City, the New Jersey shore resort which boomed in the 1890s.<sup>41</sup> However, many Philadelphians could not afford trips to the shore. Working class families spent very little of their income on entertainment.<sup>42</sup> When working class families did spend money for recreational activities, they would most frequently attend nickel movies or take trolley rides to public recreation sites. Families with very limited incomes most often partook in free amusements such as visiting parks or taking walks.<sup>43</sup>

The Race Street Pier served as a recreational site for urban residents where they could enjoy fresh air and a vista without actually leaving the city. From the Race Street Pier, visitors could watch the coming and goings of the harbor, such as the ferries leaving the Market Street pier for Camden, or the banana boats unloading at the adjacent pier to the south. During the summer, the waterfront offered cooler temperatures than the crowded neighborhoods. For urban residents who were unable to flee the heat by travelling to the shore or mountains, the breezes of the waterfront must have provided a welcome respite. Photographs from the early years of the Race Street pier's operation document people fishing, sitting on the benches, and standing at the railing watching the activity of the harbor.<sup>44</sup>

---

<sup>40</sup>Rolf Steinberg, *Dead Tech: A Guide to the Archaeology of Tomorrow* (San Francisco: Sierra Club Books, 1982), 43. Steinberg discussed the imagery of abandoned recreation piers in Britain and dilapidated New York City piers.

<sup>41</sup>Funnell, 7, 9.

<sup>42</sup>Peiss, 13.

<sup>43</sup>Peiss, 13.

<sup>44</sup>See Note 25.



In addition to serving as a waterfront park, the Race Street Pier housed organized recreation activities for children. In the early twentieth century, civic-minded Philadelphians expressed concern about the lack of accessible and affordable recreation activities for the poor children in the crowded city neighborhoods and lobbied the city to provide more play areas. Child welfare advocates, such as the Philadelphia Playground Association, thought playgrounds served several important functions. They provided play space and supervised activities for children who lived in crowded housing and had nowhere to play except in streets and alleys. Furthermore, playgrounds offered urban children the opportunity to experience the "natural childhood" reformers considered critical to "better citizenship."<sup>45</sup> Play, therefore, could be a "potent factor in Americanizing" immigrant children.<sup>46</sup>

With encouragement from the Playground Association, the City of Philadelphia opened its recreation piers as playgrounds for children from the neighborhoods near the river. Thousands of children attended recreation programs at the Race Street Pier pavilion and the enclosed pavilion at the Chestnut Street Pier. In 1912, for example, at Chestnut Street where the pavilion housed basketball and other indoor sports, 114,343 children attended supervised recreation sessions. The piers remained open in the evenings, because many children who worked during the day enjoyed visiting the piers after work. A member of the Playground Association observed that "the common opportunities for beneficial recreation of the children of the docks are quite exceedingly meagre. Consequently, the Chestnut Street Pier is one of their most valuable possessions."<sup>47</sup> The recreation programs at the Race Street Pier were also well-attended. In the summer of 1912

---

<sup>45</sup>*Mayor's Annual Message*, 1912, Volume I, 710.

<sup>46</sup>*Mayor's Annual Message*, 1912, Volume I, 710.

<sup>47</sup>*Mayor's Annual Message*, 1912, Volume I, 710.





an average of two hundred children visited the pier each day.<sup>48</sup> Because the open pavilion was deemed unsuitable for use in cold weather, the pier only remained open for play from June 1 to September 30. Staff salaries for supervisors represented the city's primary expense in operating the recreation pier. In 1912, Philadelphia paid \$3,033 in supervisors' salaries, out of a total operating budget for the pavilion of \$3,550.<sup>49</sup>

The recreation program continued at the Race Street Pier through the summer of 1919. A *Philadelphia Bulletin* article written in July, 1919, proclaimed that: "Race Street Recreation Activities Attract 700 Daily," and reported that people had petitioned the City Council asking for the installation of shower baths and two new tennis courts, but were unsuccessful in gaining these improvements.<sup>50</sup> Unfortunately, the city closed the pavilion in 1919 after determining that it was no longer structurally sound.<sup>51</sup> Although the City Council had been warned of the impending condemnation, it had declined to appropriate money for repairs.<sup>52</sup>

While the Race Street Pier housed recreation programs to benefit the physical health of older children, the pier also had a key role in Philadelphia's fight against urban infant mortality. In the early twentieth century, cities, crowded with poverty-stricken immigrants, experienced high infant mortality rates. The infant mortality rate typically peaked during summer months. For example, Philadelphia Board of Public Health records from 1910 showed that the infant death rate nearly tripled in July compared to the cooler months. In mid-July, two hundred and fifteen children under one year of age died, compared to an

---

<sup>48</sup>Mayor's Annual Message, 1912, Volume I, 710.

<sup>49</sup>Mayor's Annual Message, 1912, Volume I, 701.

<sup>50</sup>"Form Pier Athletic Club," *Philadelphia Bulletin*, July 29, 1919.

<sup>51</sup>Mayor's Annual Message, 1919, 348.

<sup>52</sup>Mayor's Annual Message, 1919, 348.



average of about eighty per month in cooler seasons.<sup>53</sup> The 1910 census revealed that infants under one year of age accounted for one-fifth of all deaths, and one-third of all deaths occurred in children less than five years of age.<sup>54</sup>

Other large cities shared Philadelphia's high infant mortality rates. A study in New York City determined that in the heat of July, the death rate among infants escalated almost three times over the average rate. Public health authorities attributed the rise in the mortality rate to lower infant vitality in the heat, as well as the ingestion of spoiled milk and the resultant diarrheal disorders.<sup>55</sup> Even before establishing a Department of Public Health, New York City sponsored a system of "Baby Health Stations," modeled on a Parisian program. At these stations, mothers could receive "modified (pasteurized) milk" at a reasonable cost, as well as obtain information about breast feeding.<sup>56</sup> New York City's program played a critical role in reducing the death rate from the diarrheal diseases which caused twenty-nine percent of the deaths of infants less than one year of age.<sup>57</sup>

In 1910, the Philadelphia Department of Public Health and Charities established the Division of Child Hygiene. This division's principal task was to reduce the infant mortality rate by teaching mothers and sisters, who often shared responsibility for child care, how to protect infants from infection. The Division of Child Hygiene created exhibits on "care of the baby" at milk stations, schools, the city piers, and other institutions.<sup>58</sup> City health officials also distributed "modified," or pasteurized milk at milk stations throughout Philadelphia. However, preventive programs were only part of the Division's strategy.

---

<sup>53</sup>*Mayor's Annual Message*, 1910, Volume III, 18.

<sup>54</sup>William Hallock Park, *Public Health and Hygiene* (Philadelphia: Lea & Febiger, 1920), 668.

<sup>55</sup>Park, 679.

<sup>56</sup>Park, 684.

<sup>57</sup>Park, 688.

<sup>58</sup>*Mayor's Annual Message*, 1910, Volume III, 15.



Providing facilities dedicated to caring for infants who did fall ill was the Division of Child Hygiene's other focus.

Philadelphia desperately needed facilities for ill infants. According to the Department of Public Health, hospitals almost unanimously declined to admit sick babies, and no other adequate facilities existed to care for babies suffering from what the newspapers described as "summer disease."<sup>59</sup> Starting in the summer of 1910, the Department of Public Health created facilities to care for sick infants by converting the piers at Chestnut and Race Streets as open air hospitals during the hottest months of summer. Obviously, in the days before air conditioning, infants suffering from a high fever would have found some comfort with cooling fresh air. At the piers, nurses distributed modified milk and, with help from physicians, attended the sick children. The Philadelphia Playground Association provided activities for the infants' older siblings at play areas with apparatus, attendants, and instructors. Freed from supervisory responsibility for their older children, mothers were able to devote their time to caring for their sick infants.<sup>60</sup> Health workers also gave lessons to the mothers and sisters of the babies on the proper way to prepare food, wash, and care for infants.<sup>61</sup>

In 1911, the hospitals' second year, the City Council appropriated five thousand dollars for "the care of the poor in the congested district during the heated term."<sup>62</sup> The council allocated another five thousand dollars for ice and milk. That summer, physicians at the Philadelphia Board of Health decided to divide the functions of the facilities on the two piers. After an initial examination at Chestnut Street, healthier babies would receive

---

<sup>59</sup>"Piers Thrown Open to Babes of Poor," *Philadelphia Bulletin*, June 16, 1913; *Mayor's Annual Message*, 1910, Volume III, 15.

<sup>60</sup>*Mayor's Annual Message*, 1910, Volume III, 16-17.

<sup>61</sup>*Mayor's Annual Message*, 1910, Volume III, 16-17.

<sup>62</sup>*Mayor's Annual Message*, 1911, Volume III, 24.



treatment at the Chestnut Street Pier, while seriously ill babies would be taken to a sixty-bed hospital at the Race Street Pier. The city reported that in 1911 its program served ten thousand infants and seven thousand mothers and caretakers at the Chestnut Street Pier, while three hundred and forty ill babies received care at the Race Street Pier.<sup>63</sup>

The Department of Public Health's program of prevention and care continued with notable success in 1912. The Department of Public Health measured a twenty nine percent reduction in the mortality rate of children under two years of age. The Department of Public Health reported that Chestnut Street Pier saw 1,747 sick babies and 1,640 well babies. Also, 4,523 older children arrived with the 8,637 mothers and caretakers who received instruction in proper care of infants while the medical staff examined their babies. The hospital at the Race Street Pier added thirty beds that summer, as well as a lavatory, a doctor's office, and a laundry. Three consulting physicians, an attending physician, and three assistant physicians staffed the temporary hospital.<sup>64</sup>

By 1913, the milk program and other public health programs significantly reduced the infant mortality rate. The Department of Health reported that the rate for children under two years of age climbed from about fifteen deaths per week from diarrhea and enteritis in the fall and winter to about eighty deaths per week in July and August.<sup>65</sup> While the death rate still escalated in the summer, annual infant mortality rates declined markedly after 1910. In 1913, the Department of Public Health diversified its infant mortality prevention program by allocating money to hire eight public health nurses who made home visits in the most crowded and impoverished city wards. However, mothers continued to seek aid at the piers. At the Chestnut Street Pier, physicians and nurses examined 4,497 infants, and

---

<sup>63</sup>*Mayor's Annual Message*, 1911, Volume III, 24.

<sup>64</sup>*Mayor's Annual Message*, 1912, Volume III, 19-20.

<sup>65</sup>*Mayor's Annual Message*, 1913, Volume III, 265.





nurses instructed 8,721 mothers. Under the supervision of Dr. Henry Sykes, Chief Resident Physician of the Philadelphia General Hospital, the Race Street Hospital cared for two hundred and fifty-eight sick infants. Play programs continued as well. A 1913 newspaper article reported that at the Chestnut Street Pier, "dozens of youngsters who were coaxed into good health and rose-leaf bloom by the freshening river breezes last summer all pile in for days of play with unbounded enthusiasm."<sup>66</sup>

In 1914, the City opened the Race Street "Baby Refuge" for what would be its final summer. Attendance fell in 1914, as the hospital admitted only one hundred and thirty-eight infants between June 18 and August 31. The Department of Public Health's detailed statistics for this season recount that only thirty infants were at the hospital at any one time. Sixty-five percent of admitted infants suffered from enteritis or gastro-enteritis, and of these, one-third died.<sup>67</sup> The following year, 1915, rather than continuing to operate the baby hospitals, the city devoted its public health funds to supporting additional district nurses who provided education and preventative care at the babies' homes.<sup>68</sup>

While the upper story of the pier served the community by providing recreation and hospital facilities to safeguard children's physical health, the lower story of the pier housed protectors of physical property--the city fire and police boats. The Samuel H. Ashbridge, the Edwin Stuart, and the Rodolph Blankenburg moored at the Race Street Pier at various times between 1901 and 1930.<sup>69</sup> [Figure 2.10] The fireboat crew of these vessels had the responsibility for fighting fires in waterfront structures and aboard ships. The harbor police rescued people and property from the river, as well as patrolling the dock areas. In

---

<sup>66</sup>"Piers Thrown Open to Babes of Poor."

<sup>67</sup>*Mayor's Annual Message*, 1914, Volume III, 492.

<sup>68</sup>*Mayor's Annual Message*, 1915, Volume IV, 733.

<sup>69</sup>*Philadelphia Maritime Exchange Annual Reports*, 1906-1930; *Philadelphia City Directories*.



1920, Pier 11 also housed the Office of the Division of the City Ice Boats and Dredges, which had the responsibility for keeping an adequate shipping channel open when the Delaware River froze.<sup>70</sup>

The Race Street Pier's tenants also included several commercial steamship lines. From 1913 to 1923, the Bush Line (later George W. Bush and Sons) made daily trips to Marcus Hook, Wilmington, and Newcastle. Ships of the Frederica and Philadelphia Navigation Company left daily to Bowers Beach and Frederica between 1915 and 1918. The Marine Transport Company provided daily service to Baltimore between 1921 and 1923, while the Cuneo Importing Company's Jamaica-bound ships departed weekly.<sup>71</sup>

Pier 11 served the public for thirty years. Records of major repairs and additions made to the facility indicate that the city conducted regular maintenance and repair work at the pier into the 1920s. In 1910, the pier's tenth year, the city granted M. and J. B. McHugh a \$6,000 contract to lay new railroad track foundations and new decking, making it possible for railroad cars to carry cargo onto the pier.<sup>72</sup> Contractors also painted the interior and exterior, repaired the substructure and roof, and installed a new cast iron column entrance on the facade which had been altered to admit railroad cars.<sup>73</sup> In 1911, further construction expanded the office space, and the pier received another coat of paint.

---

<sup>70</sup>*Philadelphia Maritime Exchange Annual Report for 1920*, 56-7.

<sup>71</sup>*Mayor's Annual Messages*, Report from the Directors of the Department of Wharves Docks and Ferries, 1913-1923, provide a complete list of lessees.

<sup>72</sup>*Mayor's Annual Message*, 1910, Volume II, 483.

<sup>73</sup>*Mayor's Annual Message*, 1910, Volume II, 473-479, provides a list of contracts issued for work on the pier. These included: John Baizley Iron Works to furnish materials and placing a new cast iron column entrance on the pier; American Paving and Construction Company to repair the substructure and roof; Kensington Shipyard Co. to construct a wooden landing forty feet long and twenty feet wide for the the south side of the pier; and Thomas S. Butler to paint the interior and exterior.



<sup>74</sup> Filbert Paving and Construction Company repaved the pier with creosoted wood blocks in 1912, and the pier was repainted once again.<sup>75</sup> By 1915, the upper deck received a new surface, and crews repaired the wharf drops and cargo doors.<sup>76</sup> A Christmas Day fire, in 1915, destroyed the north outshore tower, and the city hastily awarded a contract for rebuilding the tower.<sup>77</sup>

While the city worked on the pier over time, the city's maintenance and repairs did not prevent the deterioration of the steel connections at the first deck and deflection of the main girders.<sup>78</sup> In 1919, city inspectors deemed the recreation decks of both the Race Street Pier and the Chestnut Street Pier unsafe for use "excepting under rigid regulations until reconstruction and repairs have been made to correct the defects."<sup>79</sup> The Department of Wharves, Docks and Ferries then requested that the city council appropriate money for structural repairs in the 1919 budget, but the council declined to do so.<sup>80</sup>

By 1922, the Department reported that the Race Street Pier had deteriorated so much that within one year the lower deck would no longer be useable either. They explained that the pier was "of an obsolete type which requires renewal of the timber substructure each 10-12 years," and full repairs would cost \$200,000.<sup>81</sup> Anticipating that construction of the western pylon for the Delaware River Bridge would block access to the

---

<sup>74</sup>*Mayor's Annual Message*, 1911, Volume II, 449. Contracts included: Thomas S. Butler to paint; Armstrong and Lallo Company to repair the south side landing; and E.E. Bratton Co. to expand the office space.

<sup>75</sup>*Mayor's Annual Message*, 1912, Volume II, 464-466. Contracts were made with John J. Murphy to paint, and the Filbert Paving and Construction Company to replace the deck with creosoted wood blocks.

<sup>76</sup>*Mayor's Annual Message*, 1915, Volume I, 472-485. Contracts included: Ferdinand Carder to resurface the upper deck; to tear out the burnt tower; to replace fenders on the north side; to renew metal work; and to repair wharf drops and cargo doors.

<sup>77</sup>*Mayor's Annual Message*, 1916, Volume II, 544.

<sup>78</sup>*Mayor's Annual Message*, 1919, Volume II, 348.

<sup>79</sup>*Mayor's Annual Message*, 1919, Volume II, 348.

<sup>80</sup>*Mayor's Annual Message*, 1919, Volume II, 348.

<sup>81</sup>*Mayor's Annual Message*, 1922, 243



north side of the pier, the Department of Wharves, Docks, and Ferries recommended that Philadelphia invest only \$30,000 to keep the pier operational until construction of the bridge began.<sup>82</sup> The city planned to demolish the Race Street Pier and build a larger pier directly under the Delaware River Bridge once the bridge was finished.

After announcing these plans, the city took no concrete steps to replace the Race Street Pier. A fire damaged the outshore end of the pier in 1926, and the pier continued to deteriorate.<sup>83</sup> In 1928, the city condemned the entire structure.<sup>84</sup> Investigators determined that "a port facility of such inadequate size and with restricted dock space could not be successfully used for other than the berthing of tug boats or similar craft."<sup>85</sup> Specifications were made for bids to raze the condemned structure, which city records described as "an inheritance from other days [sic] radically different port requirements than exist today."<sup>86</sup>

In the 1930s, however, the City of Philadelphia decided to rebuild the deteriorated structure rather than replace it. In February, 1931, Kaufman Construction received the contract for a bid of \$149,400.<sup>87</sup> By June of 1931, workmen had dismantled the pavilion and stripped the first floor of the pier down to its steel framing. They then re-clad the framing and replaced the pavilion with a single square wooden tower on the north side.

According to a newspaper article written during the reconstruction "when the pier [Race Street] was erected in 1899, Philadelphians considered it one of the sights of the city, and its recreation features on the upper deck made it a favorite center for visitors."<sup>88</sup> The reporter recounted that elaborate public exercises marked the pier's formal opening. Public

---

<sup>82</sup> *Mayor's Annual Message*, 1922, 243.

<sup>83</sup> "Fire on Municipal Pier," *Philadelphia Bulletin*, September 21, 1926.

<sup>84</sup> *Mayor's Annual Message*, 1928, 602.

<sup>85</sup> *Mayor's Annual Message*, 1928, 614.

<sup>86</sup> *Mayor's Annual Message*, 1928, 614.

<sup>87</sup> "Kaufman Low for Pier Job," *Philadelphia Bulletin*, February 25, 1931; "Long Idle Pier Being Made Over," *Philadelphia Bulletin*, July 19, 1931.

<sup>88</sup> "Long Idle Pier Being Made Over."





ceremonies, attended by Philadelphia's mayor, also marked the re-opening of the Race Street Pier, renumbered as Pier 11, in November, 1931.<sup>89</sup> [Figure 2.11] While the reconstruction made the pier usable once more, in its new form the Race Street Pier lacked its prior grandeur and, more significantly, its role as a public waterfront facility.

---

<sup>89</sup>"Moore at Pier Re-Opening," *Philadelphia Bulletin*, November 11, 1931.



### CHAPTER THREE: THE CHERRY STREET PIER

Philadelphia's port development projects in the 1890s provided facilities, such as the recreation piers, and infrastructure, such as Delaware Avenue, which served generally public purposes. In 1907, the city's role in developing the port shifted to the construction of cargo piers which it could lease to commercial tenants. Between 1907 and 1925, the city constructed twelve general cargo piers.<sup>1</sup> Pier 9, built at the foot of Cherry Street in 1916, was one of the first piers in this building campaign, and stands today as a document of this era of rapid port expansion.

The utilization of larger ships and new cargo handling methods in the 1900s created a demand for larger piers. Refinement of the steam turbine engine at the turn of the century introduced smaller, more efficient engines, allowing more space for cargo and passengers.<sup>2</sup> Uncovered wharfs or small pier sheds sufficed for many years as loading facilities. Typical turn of the century ocean-going steamships carried a cargo of between five and ten thousand tons.<sup>3</sup> The efficient loading and unloading of thousands of tons of cargo from ships to railroad cars, trucks, and wagons, and vice-versa, required larger piers and covered storage areas to shelter cargo from weather and protect it from theft.<sup>4</sup> Ports with sophisticated facilities and faster turn-around time could compete more efficiently in the shipping business.

Confronted by shipping's new facility needs, port cities throughout the nation began to improve their port structures. By making public investments in their ports, cities

---

<sup>1</sup>The Delaware River Port Development study of 1948 lists the following piers and construction dates: Pier 19 North, 1911; Piers 3 and 5 North, 1923; Pier 16 South, 1913; Pier 30 South, 1921; Piers 38 and 40 South, 1914-15; Piers 78 and 80 South, 1918/1926; and Piers 82-24 South, 1926. Additionally, the city rebuilt Pier 4 South at Chestnut Street in 1921 for use a port offices.

<sup>2</sup>Baynard, 736-7.

<sup>3</sup>Baynard, 736-7.

<sup>4</sup>Roy S. MacElwee, *Ports and Terminal Facilities* (New York: McGraw Hill, 1918) 128.



hoped to compete for the growing international shipping trade. In order to facilitate public-sector port expansion, many cities turned over the management of their waterfronts to port authorities. Port authorities typically functioned as both regulators and developers of the ports.<sup>5</sup> Interestingly, the impetus behind the creation of these public authorities was a desire to keep private railroads from controlling port development and determining who could have access to their private port facilities.<sup>6</sup>

In 1906, A. S. Eisenhower, Chief of Philadelphia's Bureau of Public Property, reported that "there seems to be an urgent demand for public wharves where steamships could dock and discharge and take on cargoes without being compelled to submit to the prejudices of private owners or unfriendly corporations."<sup>7</sup> While the state-controlled Board of Port Wardens had held the authority to condemn waterfront land and construct public facilities, they had no real ability to execute plans. Consequently, Eisenhower stressed the importance of bringing the port under municipal control, stating that: "The City of Philadelphia should secure legislations enabling her to condemn wharf properties for the purposes of enlarging piers or widening docks, and should have the preference as against private owners in the extension of piers at the termini of streets."<sup>8</sup>

In early 1907, experts from ports throughout the world wrote articles for an issue of the *Annals of the American Academy of Political and Social Science* addressing "Port Administration and Harbor Facilities." Professor Ward W. Pierson of the University of Pennsylvania contributed a paper discussing the need to modernize both the management and the facilities at the port of Philadelphia. Pierson observed that while Philadelphia, along with New York City, Boston, and Baltimore, ranked as one of the main "doorways

---

<sup>5</sup>Burke, *History of the Port of Seattle*, 18.

<sup>6</sup>Burke, 19.

<sup>7</sup>*Mayor's Annual Message*, 1906, 411.

<sup>8</sup>*Mayor's Annual Message*, 1906, 411.



to the great Atlantic Highway," it needed to improve its competitive standing.<sup>9</sup> Pierson noted that Philadelphia's foreign trade volume was only one-tenth that of New York. Furthermore, Baltimore, a city with one-third Philadelphia's population, attracted an equal amount of foreign trade.<sup>10</sup> According to Pierson, Philadelphia offered shippers greater advantages than other Atlantic ports, including proximity to steady agricultural trade, iron manufacturing, coal fields, and oil resources. The Pennsylvania Railroad and the Reading Railroad lines both served Philadelphia, and the city supported extensive manufacturing operations.<sup>11</sup>

Although the port had definite locational advantages, the physical condition of Philadelphia's port kept it from reaching its potential. Pierson described the harbor, stating:

Some of the wharves are used as dumps and ash heaps; some as railroad yards; others are rotten and decayed and sinking below the surface of the water. There is not a single wharf, public or private, which will accommodate a vessel drawing over 26' of water, and three-fourths of them will not accommodate vessels of one-half that depth.<sup>12</sup>

Pierson attributed the decrepit state of the harbor to Philadelphia's antiquated system of port management and a sacrifice of public interest to private concerns. He explained that the pattern of private pier ownership and the long-term occupancy of city piers by tenants prevented independent ships and shippers from having access to the waterfront. Those wishing to ship goods had no choice but to consign them to a railroad or

---

<sup>9</sup>Ward W. Pierson, "Philadelphia," in "Port Administration and Harbor Facilities, A Symposium," *Annals of the American Academy of Political and Social Science*, Vol. 29 (March 1907), 122.

<sup>10</sup>Pierson, 116.

<sup>11</sup>Pierson, 123.

<sup>12</sup>Pierson, 124.





established shipping line.<sup>13</sup> Pierson concluded that in order for Philadelphia to recover its ocean trade, it must modernize both the harbor's facilities and its management system.

Important commercial interests shared Pierson's belief that port development required improving port administration. In the early 1900s the Philadelphia Maritime Exchange lobbied the Pennsylvania legislature to concentrate the scattered authority over the port into a single department of the city government. J.S.W. Holton, President of the Philadelphia Maritime Exchange, drafted a bill proposing that the state transfer the divided authority over the port from the Board of Port Wardens and the Harbor Master to a single municipal agency.<sup>14</sup> In 1907, the Legislature adopted this measure, thereby authorizing Philadelphia to centralize governmental responsibility for port into the Department of Wharves, Docks, and Ferries.

Some people questioned the appropriateness of involving a city department in the traditionally private activity of providing dock facilities.<sup>15</sup> Philadelphia officials responded by saying that the municipal development of port facilities in Philadelphia followed a national trend. The Director of the Department of Wharves, Docks, and Ferries commented that, "private ownership and control of waterfront facilities in great cities is rapidly becoming obsolete. It is now universally recognized that municipal ownership and control is essential to the proper development of any port."<sup>16</sup> Furthermore, Calvin Thompkins, the Commissioner of the Board of Docks and Ferries in New York City and the First President of the American Association of Port Authorities, claimed in 1912 that, "public

---

<sup>13</sup>Pierson, 124-125.

<sup>14</sup>*Mayor's Annual Message*, 1926, 380; Pierson, 125.

<sup>15</sup>Burke, 19.

<sup>16</sup>*Mayor's Annual Message*, 1912, Volume II, 396.



administration is in accord with the trend in public opinion, and what may seem advanced ideas will appear to be very moderate within a short time."<sup>17</sup>

In 1911, George Norris, Director of the Department of Wharves, Docks and Ferries, recommended that the city act decisively to expand the availability of modern piers. Norris proposed that the city not only construct piers at city-owned street ends as it had done in the past at Race, Chestnut, and Arch Streets, but also acquire riverfront property and construct piers at underutilized private sites. The Department of Wharves, Docks, and Ferries could then attract new shipping lines by renting these piers at competitive rates.<sup>18</sup> Stressing the importance of an aggressive port development program, Norris claimed that: "If Philadelphia is to realize the usufruct [sic] of her natural endowment of magnificent transportation opportunities by land and water, she must fight for it with the same weapons used by her rival sister ports: brains, energy, and money."<sup>19</sup>

Over the next twenty years, Philadelphia made a substantial investment of municipal resources in the port, funding the construction of thirteen municipal piers.<sup>20</sup> During this time period, municipal ownership of the shoreline expanded steadily. By 1914 the city owned 11.8% of the bulkheaded waterfront, an increase from 9.6% in 1911.<sup>21</sup> Pier construction constituted only part of the city's harbor development program. Because modern piers offered little advantage if fully-loaded ships could not reach them, creating and maintaining an adequate channel in the Delaware River was as critical to the port's future as replacing obsolete piers with modern facilities.<sup>22</sup> Lobbying by Philadelphia

---

<sup>17</sup>Burke, 19. Burke cites a 1912 letter from Thompkins to the Port of Seattle Commissioners.

<sup>18</sup>Department of Wharves Dock, and Ferries, 1911.

<sup>19</sup>*Mayor's Annual Message*, 1913, Volume II, 338.

<sup>20</sup>*Delaware River Port Development*, (Philadelphia: 1948) Table B-2, 140.

<sup>21</sup>*Mayor's Annual Message*, 1914, Volume II, 696.

<sup>22</sup>"Philadelphia, United Commercial Travelers' Souvenir, " (Philadelphia: 1924) 12.



shipping interests led Congress to authorize a thirty-five foot deep and eight hundred to twelve hundred foot wide channel for the Delaware as part of its 1910 National River and Harbor Act.<sup>23</sup> The dredging project ensured that the river depth would not be a barrier to trade.

In 1915, the Department of Wharves, Docks, and Ferries' *Annual Report* outlined some of the suggestions people had made for improving the underutilized central waterfront. At the time, the shoreline area between Market Street and Arch Street housed three deteriorated single-story wooden shed piers. Additionally, a short wooden pier owned by the Lehigh Valley Railroad Company stood opposite Cherry Street.<sup>24</sup> [Figure 3.1] Some people proposed the removal of all the piers between Vine and South Streets, thereby completely freeing the shoreline for new development. Others favored the more moderate remedy of removing the most dilapidated piers and reserving the rest for domestic traffic.<sup>25</sup>

While the specific proposals varied, all agreed that the central part of the waterfront was not as well suited for large cargo vessels as the areas to the north and south of center city. Not only did pedestrians and wagons congest the roadway but steep slopes on Chestnut, Walnut, Market, and Arch Streets where the streets dropped down to the waterfront made transporting cargo a challenge.<sup>26</sup> Furthermore, the area lacked a convenient railroad car yard. A car yard was necessary for the efficient assembly of the trains which were widely used to transport cargo to and from the piers. Additionally, the five-hundred-foot restriction on pier length in that area of the Delaware limited piers to a

---

<sup>23</sup> Colonel W. B. Ladue, "Harbor Developments of the Port of Philadelphia in Progress and Contemplated," *Engineers' Club of Philadelphia* (May 1918), 188.

<sup>24</sup> *Hexamer Atlas of the City of Philadelphia*, 1915.

<sup>25</sup> *Mayor's Annual Message*, 1915, Volume III, 379-82.

<sup>26</sup> *Mayor's Annual Message*, 1919, 345.



length more suited for coastal traffic than ocean going traffic. With these issues in mind, the city planned to locate facilities for coastal shipping and travel in the central part of the waterfront and construct larger piers for ocean-going traffic outside center city.<sup>27</sup>

Before the city could establish this hierarchy of piers for coastal and ocean traffic, World War I created a tremendous demand for port facilities. The Army moved quickly to ship supplies and soldiers to Europe from the Atlantic coast. According to Department of Wharves, Docks, and Ferries statistics, in 1916, exports totalled 321,054,815 tons, 190,000,000 tons more than in 1915. Imports grew to 111,407,851 tons, up 42,000,000 tons from 1915 levels.<sup>28</sup> In July 1916, Philadelphia responded to the increased demand by approving improvements to existing municipal piers and the construction of three new piers. The city planned to build two of these piers at the ends of Kenilworth and Porter Streets. For the third pier, planned for the area opposite Cherry Street, the city authorized condemnation of the Lehigh Railroad property.<sup>29</sup>

The city awarded the contract for pier construction on December 21, 1916, with the intention that work would begin in January, 1917.<sup>30</sup> However, war-related shortages in laborers and construction material slowed progress on the pier.<sup>31</sup> Since work could only occur when construction material was available, two years later in 1918, work crews had completed only sixty percent of the work.<sup>32</sup> The pier was finally finished in 1919 after the Armistice had freed the necessary resources for municipal use.<sup>33</sup>

---

<sup>27</sup>*Mayor's Annual Message*, 1915, Volume III, 380.

<sup>28</sup>*Mayor's Annual Message*, 1916, Volume II, 523. In 1918, the value of exports rose to 427 million dollars, while imports totalled 114.5 million. *Mayor's Annual Message*, 1918, 399-402.

<sup>29</sup>*Mayor's Annual Message*, 1916, Volume II, 525.

<sup>30</sup>*Mayor's Annual Message*, 1916, Volume II, 540.

<sup>31</sup>Photographs in the Library Company of Philadelphia's collection document some aspects of the pier construction.

<sup>32</sup>*Mayor's Annual Message*, 1918, 404.

<sup>33</sup>*Mayor's Annual Message*, 1918, 406; *Mayor's Annual Message*, 1919, 339.





The design selected for this pier, numbered Pier 9, but often referred to as the Cherry Street Pier, reflected the decision to provide a facility which offered the flexibility of use necessary to accommodate varied cargoes. The neo-classical facade, found on both the Delaware Avenue and the outshore ends of the pier, gives an appearance of permanency and importance to an otherwise strictly functional structure. Two symmetrical arched openings, providing access to railroad tracks on the pier, dominate the reinforced concrete facade. At the outshore end, three smaller arches contain large doorways and windows. Massive square pillars extending around the side define the corners of the facade, while "corbels," formed from concrete, rise up the corners. The smoothly finished concrete of the corbels contrasts with the large aggregate of the rest of the facade. Behind the facade, the single-story pier features a one hundred foot wide, single-span shed stretching more than five hundred feet into the river. Steel sheet metal encloses each side of the pier.<sup>34</sup> The walls have steel sliding doors with metal sash filling the upper part of each steel wall section. A narrow walkway extends down the sides of the pier.<sup>35</sup>

The 1916 Annual Report of the Department of Wharves, Docks, and Ferries provides information about the pier's construction.<sup>36</sup> The engineer designed the substructure to support a second deck, in anticipation that the port might decide to add another story in the future. The substructure consists of a timber platform supported by pilings. Concrete pedestals were set on the platform to support the columns and the floor system. Reinforced concrete beams and slabs underlay asphalt paving on the pier deck.<sup>37</sup> The roof structure consists of "asbestos protected" I-beam purlins resting on trusses spaced

---

<sup>34</sup>*Mayor's Annual Message*, 1916, Volume II, 536.

<sup>35</sup>*Mayor's Annual Message*, 1916, Volume II, 536.

<sup>36</sup>*Mayor's Annual Message*, 1916, Volume II, 536.

<sup>37</sup>*Mayor's Annual Message*, 1916, Volume II, 536.



twenty feet on center.<sup>38</sup> The center section of the roof is raised to create a large roof vent for admitting light and air.<sup>39</sup> While few partitions obstruct the interior, the plan included offices for the pier manager, small storerooms, and several toilets. Tenants would be able add their own improvements as desired. The Department of Wharves Docks and Ferries claimed that the pier was fireproof throughout.<sup>40</sup>

While the war slowed port facility construction, overall the port benefitted from the wartime economy. By 1919, the shipping trade had increased three hundred percent from 1915 levels. After the Army requisitioned municipal docks for overseas shipments, competition for dock space led to a twenty-five percent rental rate increase at the port.<sup>41</sup> A marked increase in the city's rental revenue from \$90,371 in 1915 to \$343,138 in 1919 reflected both a demand-driven rise in rent and the fact that the city had constructed additional piers.<sup>42</sup>

Port boosters thought that the wartime conditions provided an opportunity to lure some of New York City's traffic to Philadelphia. As the New York harbor became increasingly congested, and as export volume grew all along the coast, Philadelphia tried to gain business by lobbying government officials.<sup>43</sup> One port official described these efforts, stating that: "It was necessary, very frequently, to impress upon Washington officials the excellent advantages of this port for overseas shipments--this usually in connection with efforts to secure priority for needed building material, a greater use of the

---

<sup>38</sup>*Mayor's Annual Message*, 1916, Volume II, 536.

<sup>39</sup>*Mayor's Annual Message*, 1916, Volume II, 536

<sup>40</sup>*Mayor's Annual Message*, 1916, Volume II, 536

<sup>41</sup>*Mayor's Annual Message*, 1918, 402-4.

<sup>42</sup>*Mayor's Annual Message*, 1919, 339

<sup>43</sup>*Mayor's Annual Message*, 1918,403.



port's facilities, or the allocation of ships to the harbor."<sup>44</sup> After the war, the question remained whether the war-time boom of the port economy would translate into peacetime prosperity.

The rental history of Pier 9 indicates that the city's goal of reserving the central waterfront for coastal traffic did not work in practice as planned. In 1920, Charles Kruz and Company occupied the pier. This steamship company operated the Atlantic, Gulf, and Pacific Steamship service with runs to Baltimore, San Francisco, and San Pedro.<sup>45</sup> In 1921, the United Fruit Company moved to Pier 9 from its location at the deteriorating Arch Street Pier, and signed a ten year lease with the city in 1923. The fruit company's ships full of bananas arrived weekly from Jamaica. At the pier, crews unloaded the fruit into the pier for distribution by truck and train. Banana handling was a labor intensive job, available to lower skilled workers known as "banana fiends." Because banana handling was one of the few port jobs which offered daily, rather than weekly pay, it appealed to those who had immediate need for cash.<sup>46</sup>

The construction of Pier 9 reflected both the ambition of the newly created Department of Wharves, Docks, and Ferries and a response to port development pressures generated by World War I. With the exception of the facades, the fundamental design of Pier 9 reflected only slight innovation over that of single-story piers built a decade earlier. However, Pier 9 was the last single-story cargo pier built by the city. After 1916, the city focused on the construction of large piers which reflected changes in cargo handling methods.

---

<sup>44</sup>*Mayor's Annual Message*, 1918, 444-6.

<sup>45</sup>*Mayor's Annual Message*, 1920, 365.

<sup>46</sup>Barnes, *The Longshoremen* (New York: Survey Association, 1915), 44-47.



## CHAPTER FOUR: MANAGING THE MODERN PORT

The city built Piers 3 and 5 in the early 1920s in order to accommodate the increasingly complex processes of cargo handling. Appreciating the design and function of these two piers requires a general understanding of cargo management in the early 1920s. Therefore, this intermediate chapter examines the evolution of cargo handling processes and technology in the era of the piers' construction. In 1922, George Sproule, Director of the Department of Wharves, Docks and Ferries claimed the city's port development policy was "to keep one step ahead, if possible, of the demand, attracting trade by the superiority of our accommodations, without which the advantageous geographical location of the city as a shipping center would be largely nullified."<sup>1</sup> Providing such "superior accommodations" required the construction of piers which reflected the contemporary standards of the shipping industry. Knowledge of the issues affecting pier design in the early 1920s can be gained by studying both Port of Philadelphia publications and textbooks on port management written in the same era.

As industrial operations increased in scale and complexity in the early twentieth century, "management" developed as a discipline.<sup>2</sup> In 1911, Frederick W. Taylor published *The Principles of Scientific Management*, a book now considered a benchmark document of early management theory. Taylor advocated careful study of all the components of manufacturing processes in order to identify and eliminate inefficiency. He asserted that application of his methodology would benefit both owners and workers, because with a systems-oriented approach, one utilized resources in the maximally efficient

---

<sup>1</sup>"Profit in Piers," *Philadelphia Bulletin*, September 1, 1922.

<sup>2</sup>Robert H. Wiebe, *The Search for Order 1877-1920* (New York: Hill and Wang, 1967); and Alan Trachtenberg, *The Incorporation of America* (New York: Hill and Wang, 1982).





way, increasing productivity and wages.<sup>3</sup> "Taylorism," as this methodology was called, caught on quickly in industry.<sup>4</sup>

While Taylor emphasized manufacturing processes, managers in other fields, including port operations, adapted his philosophy to their work. The proliferation of books discussing port and cargo management between 1918 and 1924 illustrates the pervasiveness of this new interest in management. In 1918, Roy MacElwee published *Ports and Terminal Facilities*, based on a course by the same name he taught at Columbia University's business school. [Figure 4.1] In 1921, MacElwee teamed up with Thomas S. Taylor to write *Wharf Management, Stevedoring, and Stowage*, which their editors claimed represented the "first effort to cover the vocation of loading and dispatching ships from the administrative standpoint."<sup>5</sup> MacElwee and Taylor discussed aspects of pier operation ranging from transferring cargo to organizing the office to managing longshoremen. They also described the unloading process and identified the appropriate equipment for each part of the process.

Two books published in 1924 also addressed port management: *Cargo Handling at Ports* by Bryson Cunningham and *Our Ports and Inland Waterways* by Francis Collins. Cunningham presented international examples of port development and management strategies. Collins, in his introduction, claimed that he had written the book in an effort to add to the scanty amount of information available about cargo management.<sup>6</sup> The staff of Philadelphia's Department of Wharves, Docks, and Ferries also had heard the message of

---

<sup>3</sup>Frederick Winslow Taylor, *The Principles of Scientific Management*, (New York: Harper and Brothers, 1911).

<sup>4</sup>Trachtenberg, 69.

<sup>5</sup>Roy S. MacElwee and Taylor, *Wharf Management, Stevedoring, and Stowage* (New York: Appleton & Co., 1921), ix.

<sup>6</sup>Bryson Cunningham, *Cargo Handling at Ports* (New York: John Wiley & Sons, 1924); Francis Collins, *Our Harbors and Inland Waterways*. (New York: Century Co., 1924), v.



Taylorism. In 1921, the department's Assistant Director Carrol R. Thompson wrote a paper titled "Design of a Port to Take Full Advantage of Mechanical Equipment," which he read before a meeting of the "Materials Handling Symposium" in Philadelphia.<sup>7</sup>

In all the sources cited above, the authors emphasized the economic importance of efficient port management. Saving time in port meant saving money. Once a ship entered the harbor, it functioned as an expensive warehouse accumulating bills for pilots, towing, docking, unloading, preparing the holds to receive new cargo, loading, and fueling.<sup>8</sup> Unless a ship was full of cargo and enroute to its destination, it did not bring its investors any income.<sup>9</sup> Consequently, the profit or loss of a shipping line depended to a great extent upon the rapidity of the loading and unloading process.<sup>10</sup>

According to studies of the New York Port, any large ship arriving in New York could expect to spend about fifteen days in port. Passing out of quarantine required one day, waiting for a berth averaged half a day, loading and unloading took ten days, coaling required three days, and clearing the port for departure an additional day.<sup>11</sup> The overhead costs for a ship in port ran from two to four thousand dollars a day in 1920, with labor charges accounting for the largest percentage of this cost.<sup>12</sup> Consequently, shipping companies wanted to minimize their manpower needs. Rising labor costs, as well as the greater availability of labor-saving mechanical devices, helped fuel the interest in increasing the efficiency of cargo handling.<sup>13</sup> Shipping companies were not alone in their desire for an efficient port. Cities which had made large capital investments to provide port

---

<sup>7</sup>*Mayor's Annual Message*, 1921, 487.

<sup>8</sup>MacElwee and Taylor, 10.

<sup>9</sup>Cunningham, 1; MacElwee and Taylor, 2.

<sup>10</sup>Collins, 66.

<sup>11</sup>MacElwee and Taylor, 5.

<sup>12</sup>MacElwee and Taylor, 3, 24; Collins, 66.

<sup>13</sup>Collins, 66; Cunningham, 1; MacElwee and Taylor, 52.



infrastructure such as bulkheads, piers, roads, and a dredged channel needed to keep the port operating at its maximum capacity in order to maximize the benefit of these investments.<sup>14</sup>

In their books about cargo handling, the various authors distinguished between bulk cargoes and general cargoes. Bulk cargoes such as coal, ore, oil, wheat, and sand could be moved en masse by specialized machinery. Bulk cargos were usually carried on vessels, such as tankers, designed for a particular type of material. In contrast, the label "general cargo" referred to a broad category of items moved in units or containers such as bags, casks, cases, barrels, bales, or planks.<sup>15</sup> Handling general cargo posed a challenge because of the wide range of items the hold of one ship might contain. [Figure 4.2] The variety of cargo sizes and weights often defied systematic mechanical handling techniques.<sup>16</sup> Consequently, general cargo required a flexible facility where shipping companies could move, sort, and store a variety of goods.<sup>17</sup>

While each port presented a unique combination of docking facilities and transportation systems, the fundamental processes varied little from port to port.<sup>18</sup> For unloading a ship, the steps included lifting the cargo out of the ship's hold, swinging cargo overboard, moving cargo to its temporary storage place, whether the pier or a lighter or railroad car. One would reverse these steps to load cargo. Of course, these activities were typically carried out simultaneously in different parts of the facility. If outbound cargo was ready and waiting, some holds of a ship might be loaded while others were being

---

<sup>14</sup>Cunningham, 2.

<sup>15</sup>Cunningham, 9.

<sup>16</sup>Cunningham, 11.

<sup>17</sup>,*Mayor's Annual Message* , 1921, 489,

<sup>18</sup>Collins, 93.



unloaded. Moving cargo required specialized equipment such as cranes, winches, and hoists, and, most significantly, it necessitated a facility designed to handle these operations.

Cargo handling required the coordinated work of hundreds of longshoremen whose role in the process began before a ship even arrived. A 1915 study by a New York sociologist named Charles Barnes provided excellent insight into the nature of work at the docks.<sup>19</sup> When a ship announced its imminent arrival at a port, the shipping line would post an announcement, and longshoremen would gather in a semi-circle known as a "shape" in front of the pier where the ship was going to dock.<sup>20</sup> Sometimes, in Philadelphia, men would gather at Front and Christian in the evening to be hired for the next day's work.<sup>21</sup> Over one thousand men would be needed to work the larger cargo ships. A stevedore, as the supervisors were known, would pick men from the crowd, either individually or in "gangs," which were groups of men accustomed to working together at a certain task. Stevedores would also utilize a method known as "hiring by hundreds." In this case men were given numbered tags. Once the ship arrived and the stevedore had a better idea of his specific needs, he could then hire those holding numbers within a given range.<sup>22</sup>

After being hired, longshoremen would file into the pier as a pay clerk recorded their names. Irish-Americans and Irish immigrants comprised the bulk of the waterfront labor force. However, from the late nineteenth century on, Italian immigrants worked on the docks in increasing numbers. Blacks worked on the piers as well, but often in the less desirable jobs.<sup>23</sup> Barnes explained that a longshoreman did not work on a fixed schedule.

---

<sup>19</sup>Barnes, *The Longshoremen* .

<sup>20</sup>Barnes, 55, points out that the introduction of "wireless telegraphy" in 1896 allowed ships to report when they expected to reach port, and provided regularity to the process of finding labor.

<sup>21</sup>MacElwee and Taylor, 59.

<sup>22</sup>Barnes, 57.

<sup>23</sup>Barnes, 4.





If a man was not picked out of any "shapes" he might not work for several days. However, because jobs could become available at short notice, it was important for a longshoreman seeking work to remain in the vicinity of the piers. According to Barnes, the intermittent nature of the work led to the stereotype of a longshoreman as a "loafer, drinker, and brawler." Barnes observed that most men frequented the waterfront bars for the practical reason that, in most waterfront area, bars were the only place the men could go to get out of the weather while awaiting a ship's arrival. Barnes reported that nine out of ten New York City longshoremen lived in tenements near the port and supported families <sup>24</sup>

After the loading or unloading started, a longshoreman might work around the clock, stopping only for quick meals and brief rests. If equipment broke down or cargo delivery was delayed, the shipping company could lay off men until the company solved the problem. Barnes pointed out that avoiding paying several hundred men for fifteen minutes' work saved the company a significant sum of money. If the foreman anticipated that the delay would last more than a few minutes, he could tell the workers to leave the pier and wait elsewhere. This placed the men "on call," as they could not leave the waterfront for fear of missing the summons to return to work.<sup>25</sup>

The longshoremen labored under difficult and dangerous conditions. Amidst a tangle of ropes, gear, masts, and swinging booms, they carried and maneuvered heavy loads in a din of noise, surrounded by barked commands, rattling chains and flying dust.<sup>26</sup> In 1913, longshoremen received thirty-three cents an hour during the day and fifty cents an hour at night, and they were responsible, as a gang, for any damage to cargo.<sup>27</sup>

---

<sup>24</sup>Barnes, 13, 16.

<sup>25</sup>Barnes, 57.

<sup>26</sup>Barnes, 129-131; MacElwee and Taylor, 58-9.

<sup>27</sup>Barnes, 81, 88.



Companies did not provide the men with lounges, lunchrooms or lavatories.<sup>28</sup> While Barnes found that accidents were common, he had difficulty ascertaining the actual number of injuries.<sup>29</sup> Because making a disability claim could lower a worker's chances of being rehired after he had recovered, the longshoremen generally avoided reporting injuries.<sup>30</sup>

According to Barnes, longshore work required intelligence, experience, and superior judgment.<sup>31</sup> Crews often specialized at one particular task, such as working the winches at a hold or running the winches on the pier deck. Learning to perform the more challenging jobs efficiently could take several years of practical training.<sup>32</sup> A longshoreman's failure to do his job properly could jeopardize the safety of other workers. Furthermore, Barnes stated that if the men did not store cargo properly, it could break free and shift, potentially causing a ship to capsize.<sup>33</sup> Thus, the work involved responsibility as well as skill.

Once tugboats had pushed a ship into its berth, and a crew on the dock made the lines fast, another crew opened the holds. Loading and unloading a ship could be compared to moving the contents of an eight-story loft building through a hole in the roof.<sup>34</sup> The task required considerable planning. After consulting a map of the location of goods in a ship's holds, the pier foreman would devise a plan for unloading the ship.<sup>35</sup>

The first step at any hold would be "breaking out" the cargo, which referred to the process of maneuvering the items in the hold to a position underneath the hatch. Once the cargo was beneath the hatch, a winch operator would lower a line into the hold which

---

<sup>28</sup>MacElwee and Taylor, 54-59.

<sup>29</sup>Barnes, 133.

<sup>30</sup>Barnes, 155.

<sup>31</sup>Barnes, 51.

<sup>32</sup>Barnes, 51.

<sup>33</sup>Barnes, 51.

<sup>34</sup>Collins, 66.

<sup>35</sup>Barnes, 34.



another man would attach to the load. Either a crane or a winch would be used to raise the cargo from the hold. Some ships did have small cranes mounted directly on the deck of the ship. While the cranes could turn and swing cargo ashore, they had a limited reach away from the ship. Cranes would most typically be found on coastal steamers which called on ports without much equipment.<sup>36</sup>

By mounting a crane on the pier, the cargo could be hoisted from the hold and deposited on the pier by one piece of equipment. While cargo cranes were frequently seen in the European ports, they were less common in the United States. Cunningham observed that the wooden piers typically found at American ports provided a less supportive foundation for the heavy cranes than the solid quays found in Europe.<sup>37</sup> Cranes required highly skilled operators as well as people with the technical knowledge to repair them when they broke down.<sup>38</sup> The tremendous initial expense of wharf cranes created additional resistance to their use at American ports.<sup>39</sup>

Because of the costs and limitations of cargo cranes, most American ports, including Philadelphia used a technique known as "Burtoning" to move cargo between ship and shore.<sup>40</sup> Burtoning involved the use of two winches, one on the ship and one on the pier. [Figures 4.3, 4.4] First, the winch on the ship raised cargo from the ship's hold to ship's deck. Next, a man would attach a line to the cargo from the winch on the pier. While the ship's winch continued to support the load, the pier winch began to pull the cargo horizontally over the side of the ship. When the cargo reached its destination on the

---

<sup>36</sup>Cunningham, 26.

<sup>37</sup>MacElwee and Taylor, 39

<sup>38</sup>Cunningham, 39 and 73.

<sup>39</sup>MacElwee, 162.

<sup>40</sup>Cunningham, 23.



pier or on a lighter, the ship's winch operator slackened his line and the pier line lowered the cargo.

The line on the pier utilized either a fixed boom on the pier deck or a more elaborate structure known as a cargo hoist. A steel frame attached to the roof of a pier's second story, a cargo hoist allowed the use of portable winches at any point along the length of the pier. Affixing the upper block of the second winch to the top of the cargo hoist allowed the crew a far greater range for depositing the cargo, including placing it directly on the second floor of a pier.<sup>41</sup>

According to Cunningham, this simple system appeared inadequate but worked very well in reality, since a skilled crew could move from forty to sixty loads in an hour.<sup>42</sup> Drawbacks of Burtoning included the fact that it required a continually clear place to lower the cargo. If the men in the pier could not clear the landing area fast enough, the entire process would be delayed. Burtoning also required a large number of longshoremen, which meant high labor costs.

While some goods could be deposited directly on lighters, the rest went into the pier. The pier structure, often called a transit shed, housed the collection, sorting, classification, checking, and weighing of freight.<sup>43</sup> Once the cargo entered the pier, the pier manager would determine its destination.<sup>44</sup> Decisions about where to store cargo awaiting removal or loading were important because efficient operation required that cargo be accessible, but that piles not block access routes to other cargo or ships. [Figure 4.5] Hand trucks, electric trucks, or conveyer systems could be used to move the cargo. Hand trucks, operated under human power alone, were slow but reliable. On the other hand,

---

<sup>41</sup>*Mayor's Annual Message*, 1921, 494.

<sup>42</sup>Cunningham, 73-76.

<sup>43</sup>Collins, 71-2; *Mayor's Annual Message*, 1921, 489.

<sup>44</sup>MacElwee and Taylor, 230-1, Cunningham, 51.





electric trucks, which could be formed into trains, allowed a single operator to handle much more cargo. However, uneven surfaces jarred truck batteries, making the trucks prone to breakdowns.<sup>45</sup> [Figure 4.6] A two-story pier would require ways to transfer goods between floors. Equipment installed for this process included gravity chutes for sliding goods down, package elevators for smaller loads, and truck elevators capable of accommodating larger vehicles.<sup>46</sup>

Cargo could be moved directly to railroad cars on the pier as an alternative to transferring cargo to a lighter or storing it in the pier for later removal. Some engineers favored tracks on the outside margin of the pier, allowing cargo to be deposited directly into the car from the ship. However, when a cargo was not yet sorted, or when the right railroad car was not on the pier promptly as the cargo was being unloaded, the trains and track system, occupying prime work space, could interfere with the unloading. A study conducted by MacElwee found that railroad cars were typically slower to load and unload than a ship. Consequently, this system could cause back-ups on the busy pier margin.<sup>47</sup> Furthermore, the uneven surface which results from the railroad tracks hindered other work.<sup>48</sup> Placing tracks down the center of piers offered the advantage of keeping the pier margin clear.

Since goods from one vessel might ultimately leave the pier in a wagon, railroad car, or motor truck, or even on another ship, links with other transportation systems were an important consideration in pier design.<sup>49</sup> In a study done in Philadelphia in 1912, MacElwee found that teams removed sixty-two percent of inbound cargo, railroad cars

---

<sup>45</sup>Cunningham, 51-2.

<sup>46</sup>Cunningham, MacElwee and Taylor, MacElwee devote entire chapters to this subject.

<sup>47</sup>MacElwee, 288.

<sup>48</sup>Cunningham, 33.

<sup>49</sup>MacElwee, 230.



removed thirty-three percent, and lighters five percent. In contrast, forty-nine percent of outbound cargo arrived by railroad car, forty-seven percent by lighters, and four percent by horse-drawn wagons.<sup>50</sup> By the 1920s, as motor trucks became an economical form of transport, convenient road access became an essential feature of dock design.<sup>51</sup> Additionally, the provision of internal ramps allowed direct access for trucks to the second level, while external loading docks provided convenient pick up and delivery at the street where trucks or wagons would not interfere with train operations.

The complicated cargo handling process evolved continuously in response to change in any part of the system, whether the introduction of electric power, the rising cost of wages, the invention of the automobile, or changes in ship size. The systems utilized at any given pier reflected the particular conditions of the harbor. Consequently, understanding the historical function of any pier requires considering not only its particular features, but also its role as part of a larger system.

---

<sup>50</sup>MacElwee and Taylor, 279-80.

<sup>51</sup>Cunningham, 34.



## CHAPTER FIVE: THE GIRARD GROUP PIERS

Piers 3 and 5, known collectively as the Girard Group because of their location on the former site of Stephen Girard's wharves between Market and Cherry Streets, opened in 1923. Piers 3 and 5 were the last cargo piers built by the city along the central waterfront. As such, these twin, two-story piers, exemplify a trend in Philadelphia port development toward the provision of sophisticated general cargo piers designed to efficiently accommodate the technology and processes of cargo handling described in the previous chapter. [Figure 5.1]

In the early 1920s, Philadelphia's Department of Wharves, Docks, and Ferries vigorously promoted the port to both potential customers and local citizens. The port's promotional activities included advertising campaigns targeted at specific inland agricultural and manufacturing regions as far away as Indiana.<sup>1</sup> Promotional booklets published by the Department document the conditions at the port as well as the ambitions of the port authority. The 1923 *Port of Philadelphia Airgram*, for example, showed panoramic aerial views of port facilities.<sup>2</sup> The accompanying text stressed that shipping via Philadelphia rather than New York or Boston would save a shipper two cents per ton on freight.<sup>3</sup>

Another port publication, titled, "*The Port of Philadelphia, Second in the United States: The History, Maintenance, Improvement of A Great American Waterway--The Delaware River,*" described the facilities constructed at Philadelphia's port during the prior twenty years and detailed the advantages one would gain by shipping from Philadelphia.<sup>4</sup> However, this publication, aimed not only at prospective customers but also at Philadelphia businessmen and politicians, stated that the port could not afford to slow the pace of port

---

<sup>1</sup> *Mayor's Annual Message*, 1920, 330.

<sup>2</sup> *Port of Philadelphia Airgram* (Dept. of Wharves, Docks, Ferries, 1923).

<sup>3</sup> *Port of Philadelphia Airgram* (Dept. of Wharves, Docks, Ferries, 1923).

<sup>4</sup> *Port of Philadelphia, Second in the United States* (Department of Wharves, Docks, and Ferries, 1921), 1.



development. One essay encouraged readers to "Face the Facts," and realize that the ongoing competition the port faced from other harbors constantly threatened its status. According to this essay, New York City was planning to spend one billion dollars for harbor improvements, a staggering sum in comparison with the thirty million dollars Philadelphia had spent on its port. To emphasize the comparatively low amount of public investment in the port of Philadelphia, the author provided the information that London had recently spent two hundred million dollars on port facilities while Manchester had spent one hundred and ten million dollars.<sup>5</sup>

The expenditure of millions of dollars of public funds to develop the port led, inevitably, to questions about the merits of port development as a public policy. In response to concern about city spending, a 1922 article in the *Philadelphia Bulletin* explored the costs and benefits of the city's investment in port facilities. The author interviewed George C. Sproule, Director of the Department of Wharves, Docks, and Ferries, who claimed that the nine city-owned wharves returned five percent on their construction costs annually. However, Sproule emphasized that the several hundred thousand dollars in rental revenue the municipal piers generated annually was not the only benefit they provided to the city. According to Sproule, even if the piers did not generate income, "their mere existence would be a source of wealth to Philadelphia."<sup>6</sup> Sproule justified this claim by explaining that:

Every ocean steamer attracted to this port leaves in her wake from fifteen to twenty-five thousand dollars, as her expenditure for pilotage, towage, repairs, engine and commissary supplies, wharfage and the like. Much of this sum finds its way directly into the hands of a wide range of our citizens, being shared by the riverman, the blacksmith, the longshoreman, the mechanic, [and] the drayman.<sup>7</sup>

---

<sup>5</sup>*Port of Philadelphia, Second in the United States* (Department of Wharves, Docks, and Ferries, 1921), 1.

<sup>6</sup>"Profit in Piers," *Philadelphia Bulletin*, September 1, 1922.

<sup>7</sup>"Profit in Piers."





The fifteen hundred ships arriving annually from foreign ports brought about thirty million dollars into the city, an amount which justified the expenditure of public funds in the minds of port promoters.<sup>8</sup>

In 1920, the Department of Wharves, Docks, and Ferries revealed plans to continue its pier construction campaign by building two piers for general cargo shipping. The department decided that these piers would replace five decrepit and underused piers immediately north of the Market Street ferry terminal.<sup>9</sup> Piers 1, 2, and 3 North, used by the Clyde Line, Pier 4, and Pier 5, the United Fruit Company pier, were all single-story timber structures constructed in the 1890s after the removal of Smith and Windmill islands.<sup>10</sup> The Mayor explained that the city selected the site because: "Within the past few years the modern merchant marine vessel has increased so in size as to render these structures [the existing piers] absolutely inadequate for commercial purposes."<sup>11</sup> [Figure 5.1, see also Figure 3.1] The Department of Wharves, Docks, and Ferries condemned the five piers and purchased the properties for a total of 1.6 million dollars.<sup>12</sup> The Department also enticed United Fruit to relocate to the recently completed Pier 9. In return for the United Fruit's cooperation, the department agreed to build offices in a two story building connecting the new Pier 5 and Pier 9 and lease these to the fruit company.<sup>13</sup>

In March, 1921, the city received its requisite building permit from the Department of Wharves, Docks, and Ferries and solicited bids from contractors.<sup>14</sup> The Trieste Construction Company received the contract for the substructure of Pier 3. The following

---

<sup>8</sup>"Profit in Piers."

<sup>9</sup>"Girard Piers Next in Big Wharf Plan," *Philadelphia Bulletin*, March 28, 1921.

<sup>10</sup>"New Girard Pier Big Step Forward," *Philadelphia Bulletin*, December 16, 1923.

<sup>11</sup>"Wharf Ordinance Signed by Mayor," *Philadelphia Bulletin*, July 31, 1920.

<sup>12</sup>"Girard Piers Next in Big Wharf Plan."

<sup>13</sup>*Mayor's Annual Message*, 1920, 337-8.

<sup>14</sup>"License New City Piers," *Philadelphia Bulletin*, March 28, 1921.



year, in April, 1922, Trieste Construction bid just under two million dollars to receive the contract for Pier 5 and the superstructure of Pier 3.<sup>15</sup>

The Girard Group Piers utilized a different type of substructure than that described for the other piers. Rather than a timber or concrete platform on wooden pilings of the type used for the Race and Cherry Street Piers, the Girard Group's substructures consisted of dirt fill on a wooden platform. Pilings were driven into the river bottom to form a containment area in the outline of the pier.<sup>16</sup> Pilings were also driven at key places to provide extra support underneath the load-bearing columns of the superstructure. After a concrete wall was built around the top of the pilings, the whole foundation was filled with earth. This type of foundation could support greater loads than timber platforms on wooden pilings, and the completely submerged pilings were less susceptible to rot.<sup>17</sup>

The size of the piers reflected both the particular legal and physical constraints of the site and the technical needs of the business. The piers extended five hundred and fifty feet into the channel, which was as far as the law permitted. The one hundred and eighty-five foot width of the piers represented a balance between the desire for a wide wharf for sorting cargo and the necessity of leaving adequate space between the piers for ships to maneuver and lighters to be brought along side of the ship. Each of the piers offered 105,000 square feet of space on the first level, and 90,000 square feet on the second level.<sup>18</sup> Several ships could load and unload simultaneously at each pier, or a ship could unload at one berth and then load at another. Internal offices would accommodate the processing of cargo, and a single-story shed with loading platforms linked the two piers

---

<sup>15</sup>"Award Pier Contract," *Philadelphia Bulletin*, April 24, 1922.

<sup>16</sup>MacElwee, 121-123.

<sup>17</sup>MacElwee, 121-123.

<sup>18</sup>*Mayor's Annual Message*, 1920, 340.



along the bulkhead. The entire facility, carefully designed for optimal efficiency of loading and unloading cargo, occupied almost one thousand feet of water frontage.<sup>19</sup>

On the front facade of each pier, two truck doors and one train door led to the interior. One of the truck doors opened to an inclined ramp leading to the second floor. The center train door admitted a single track, which divided to accommodate two sets of railroad cars, one serving each side of the pier. Another door led into the office spaces on the first level, including an office for the deck patrolman, and stairs in the vestibule led to four mezzanine offices.

A ten-foot wide concrete apron extended down the sides of the piers, providing a place for longshoremen to work. On the north and south elevations, the steel frame of the pier was exposed. "Turn over" cargo doors, which folded upward and inward, before rotating toward the roof, filled almost all the bays on the first and second stories. These doors enabled the direct movement of cargo to and from either story from any point on the pier. Above the doors, a band of windows admitted light into the cargo areas. The installation of cargo masts on the roof facilitated movement of cargo. Cargo masts, which were actually horizontal steel frames mounted on the roof of the pier, provided a place for the top block of the block-and-tackle rigs to be hung above the level of the roof. This arrangement gave longshoremen greater flexibility in moving cargo to the appropriate level of the pier for storage.

As well as moving cargo on and off ships, longshoremen had to move cargo between the two levels of the pier. [Figure 5.2, 5.3] To accomplish such interior transfers, Piers 3 and 5 each had four truck elevators, one serving each berth. Each berth also had a cargo chute, which was a slide used to send bags or bales of cargo from the upper story to the lower. Four package elevators and "lowerators" also helped the men

---

<sup>19</sup>*Mayor's Annual Message*, 1920, 341.



move cargo. These devices accommodated bulky cargo which the chutes could not handle.<sup>20</sup> Between Piers 3 and 5, and north of Pier 5, single-story loading docks allowed trucks and wagons to receive cargo without entering the working areas of the pier. North of Pier 5's loading dock, the two-story offices of United Fruit continued the line of the Girard Group's facade.

The Girard Group's location just north of the ferry terminal gave it a highly visible position on the waterfront. The inshore and outshore ends of the pier offered City Architect John P.B Sinkler an opportunity to express to the public an image of Philadelphia as a modern port.<sup>21</sup> Sinkler, who served as City Architect from 1920 to 1924, designed not only Piers 3 and 5, but also a pier constructed at Chestnut Street in 1921, and many other city structures. After receiving his degree in architecture from the University of Pennsylvania in 1898, Sinkler studied at the Pennsylvania Academy of Fine Arts and the Ecole des Beaux-Arts. In 1902, Sinkler established his own firm, but soon entered a partnership with E. Perot Bissell, which continued until 1920.

For the Girard group piers, the functional requirements of the interior and the need to accommodate railroad and truck access dictated the overall layout of the facade. Nevertheless, Sinkler's design utilized a motif for this project different than the one used on earlier city piers. Previous piers, in the style of Pier 9, presented a few large openings, with the other architectural details of the building, such as the corner "corbels," formed in cast concrete. While Pier 9 was a one-story structure, the same motif had been expanded and used for multi-story piers as well.<sup>22</sup> In contrast, the architectural treatment of the

---

<sup>20</sup>*Mayor's Annual Message*, 1922, 260.

<sup>21</sup>Sandra Tatman and Roger W. Moss, *Biographical Dictionary of Philadelphia Architects*, 727-9. Some of Sinkler's other well known projects included the Germantown City Hall, modeled on Strickland's Merchant Exchange Building, and the restoration of the Highlands, the estate of Caroline Sinkler.

<sup>22</sup>For example, Piers 30 and 32 (1914-1915).





facades of Piers 3 and 5 incorporated more elaborate detailing formed from brick with limestone trim.<sup>23</sup>

Sinkler divided the facade of Pier 3 vertically into four bays. The center divider and the corners were wide, unbroken brick piers, which extended slightly above the roofline. Doors in the smaller intermediate piers provided access for pedestrians. Three bays housed doors for trains and trucks, while the fourth bay housed office space. Painted metal panels divided these bays horizontally at the second floor level, and windows filled the upper parts of the recesses. At the outshore end of the pier, octagonal brick towers with slit windows, which accommodated interior stairs, anchored the corners. These towers housed interior stairs. Across the outshore end, arched openings filled with steel sash admitted light to the lower level, while large rectangular windows crossed the upper level.<sup>24</sup> For Pier 5, built a year after Pier 3, Sinkler modified his design. By relocating the pedestrian access door from vertical piers to one of the bays, he could widen the center pier and narrow the two intermediate piers.<sup>25</sup> This resulted in a more vertically-orientated facade.

When Pier 3 opened in 1922, Philadelphia's Mayor Moore proclaimed the project a significant boon to Philadelphia's port which would strengthen Philadelphia's position versus other harbors. Moore announced that "We are giving notice to that combine [New York, Boston and Baltimore], in a friendly spirit, of course, that Philadelphia intends to hold its place--and more, obtain the interior shipping that is logically hers."<sup>26</sup> With the completion of the Girard group, the city had twelve modern piers and owned two and one-half miles of river frontage, five times as much as it had owned in 1907.<sup>27</sup>

---

<sup>23</sup>The application for listing on the National Register Register of Historic Places asserts that the "piers' facades rely on an abstracted classicism and use of academically acceptable materials to make a significant statement in favor of organic functionalism."

<sup>24</sup>Department of Wharves Docks and Ferries, plans for Piers 3 and 5 North, made available by Alesker, Reiff and Dundon, Architects.

<sup>25</sup>Department of Wharves Docks and Ferries, plans for Piers 3 and 5 North

<sup>26</sup>"New City Pier Opened by Mayor and Officials," *Philadelphia Bulletin*, June 29, 1922.

<sup>27</sup>"Men and Things."



When the city began planning the Girard Group in 1920, the port was operating at record levels. By 1921, a glut of ships put back in private use after World War I and a slow European economy led to a decline in shipping business. One hundred and twenty-five ships spent the entire year moored in Philadelphia. While \$733,201,047 dollars worth of exports were shipped from Philadelphia's port in 1920, only \$251,690,939 in exports left in 1921.<sup>28</sup> By 1922, however, activity at the port bounced back from its 1921 low to reach the greatest tonnage of ships ever. Coastwise trade increased as well, with 6592 vessels arriving at the port compared to 5473 the previous year.<sup>29</sup>

When the time came to rent the newly completed Girard Piers in 1923, Philadelphia hoped to benefit from the ballooning trade.<sup>30</sup> Unfortunately, problems arose in finding a tenant. Although the pier was planned for ocean-going cargo ships, initially the city permitted river steamers to use the pier. Many felt that this was a waste of the modern facilities.<sup>31</sup> The city was in a difficult position, however, because agencies operating ocean-going vessels refused to bid on the pier until the Department of Wharves, Docks, and Ferries dedicated the pier entirely to ocean traffic. Shippers felt that the passenger traffic and cargo from coastal vessels would impede freight operations. The city eventually succeeded in attracting some ocean traffic. In October 1923, the *Bulletin* reported the arrival of the first ship at Pier 5. This ship, the "City of Chattanooga," carried 80,000 cases of Hawaiian pineapple.<sup>32</sup>

In the mid-1920s several Delaware River lines relocated to Pier 3 from the decrepit Pier 11. These lines included the Chester Shipping Company, the Frederica and

---

<sup>28</sup>Mayor's Annual Message , 1922, 411.

<sup>29</sup>Mayor's Annual Message , 1922, 246.

<sup>30</sup>"First Girard Pier Formally Opened," *Philadelphia Bulletin* , June 26, 1923.

<sup>31</sup>"No Bidders for Newest Pier," *Philadelphia Bulletin*, July 12, 1923; unknown title, *Philadelphia Bulletin* , June 30, 1923.

<sup>32</sup>"New City Pier Opens," *Philadelphia Bulletin* , October 5, 1922.



Philadelphia Line, and the Trenton Transportation Company. In the late 1920s, the city found long term tenants for its piers. The Philadelphia and Norfolk Steamship Company, which ran a daily steamer to Norfolk, Portsmouth, and Newport News, took a ten year lease on Pier 3, and paid \$55,000 in rent annually.<sup>33</sup> Moore and McCormick Shipping Agents took a one year lease on part of Pier 5. In 1927, Moore and McCormick represented lines included the American Scantic Line, heading to Copenhagen; the Commercial Steamship Line, which traveled to South American Ports; the DiGiorgio Fruit Corporation, bringing in fruit from Cuba and Jamaica; and the Commercial Line voyaging to Tampa, St. Petersburg, and New Orleans.<sup>34</sup>

Even with its successes, the Department of Wharves Docks and Ferries contended that the port received inadequate municipal support. Nevertheless, in the late 1920s, the port received record amounts of traffic, and experienced annual growth in traffic volume. In 1927, shipping lines from Philadelphia reached one hundred and thirty ports. Intercoastal lines traveled to six domestic ports, and trans-oceanic lines served fifty-two European cities.<sup>35</sup> By 1930, the ships of ninety companies called on four hundred and fifty ports.<sup>36</sup> Philadelphia's convenient ship-to-[railroad] car cargo transfer system gave the port the quickest turn-around time in the United States, saving ships approximately one to three days in port.<sup>37</sup> The export of locally-produced fuel oil, for which there was a growing demand, also increased the trade volume.<sup>38</sup> In 1930, the port's Division of Statistics, which monitored shipping traffic, reported that 1.5 billion dollars worth of

---

<sup>33</sup>*Mayor's Annual Message*, 1928, 589.

<sup>34</sup>*Mayor's Annual Message*, 1927, 299.

<sup>35</sup>*Mayor's Annual Message*, 1927, 272.

<sup>36</sup>*Mayor's Annual Message*, 1930, 592.

<sup>37</sup>*Mayor's Annual Message*, 1929, 552; and *Port of Philadelphia*, 1930.

<sup>38</sup>*Mayor's Annual Message*, 1926, 418.



goods came into the port that year on 15,294 vessels--an increase of 1,369 vessels over the previous year.<sup>39</sup>

Passenger traffic also had a role at the port. In the years following World War I, Philadelphia successfully attracted international passenger traffic via international lines such as Cunard, and the Società Nazionale di Navigazione. Additionally, a Japanese passenger line began service in 1929.<sup>40</sup> However, as changes to United States immigration laws in the late 1920s limited access for foreigners, international passenger traffic declined significantly from pre-war levels. In 1913, over 150,000 passengers came through the port compared to 34,358 total from 1921 to 1929.<sup>41</sup>

In 1927, in spite of growing overall trade volume, the Director of the Department of Wharves, Docks and Ferries stressed that the city's substantial investment in facilities must be continually supported by promotional efforts sufficient to ensure utilization of the port's full capacity.<sup>42</sup> Consequently, the Department of Wharves, Docks, and Ferries utilized a variety of tactics to generate interest in the port. For example, the department's Ocean Traffic Bureau hired salespeople to travel to areas east of the Mississippi and speak to manufacturers, shippers, and commercially-oriented organizations such as Chambers of Commerce. The goal of these representatives was to secure cargo for the port. The Ocean Traffic Bureau also kept a library of information pertaining to the port, and lobbied for legislation which would help the port expand its business.<sup>43</sup> Other promotional activities of the Department included mounting an exhibition at the 1930 Exposition Internationale at Antwerp to entice foreign shippers to send their goods into the United States via

---

<sup>39</sup>*Mayor's Annual Message*, 1930, 670.

<sup>40</sup>*Mayor's Annual Message*, 1919, 337.

<sup>41</sup>*Mayor's Annual Message*, 1929, 521.

<sup>42</sup>*Mayor's Annual Message*, 1927, 271.

<sup>43</sup>*Mayor's Annual Message*, 1930, 592.





Philadelphia.<sup>44</sup> The department also provided harbor tours on its tug boat, the John Wanamaker. In 1929, 5572 visitors from community organizations, women's clubs, and conventions, as well as dignitaries from foreign countries toured the harbor as guests of the city.<sup>45</sup>

The Port of Philadelphia served not only the city which funded its operations, but the state of Pennsylvania as well. As Richard Weglein, a Director of the Department of Wharves, Docks and Ferries, observed, the "great productive resources of the Keystone State are wonderfully represented in most of the outbound shiploads."<sup>46</sup> With its state-wide impact in mind, in 1929 the city requested five hundred thousand dollars in state funding for the Department.<sup>47</sup> Although the legislature did not appropriate funds for them in 1929, the department returned to Harrisburg in 1930 to request one million dollars of financial assistance from the State of Pennsylvania.<sup>48</sup> Once again, the state did not allocate any funds for the port.

The Pennsylvania Legislature did take some action on the port's behalf in 1931 when it passed an enabling act which allowed the City of Philadelphia to grant leases on its property for up to fifty years. Previously, the maximum lease length was ten years. Under the new system, a lessee would have incentive to make the substantial investment in improving wharf facilities, because they would be able to realize a return on the investment over fifty years.<sup>49</sup>

---

<sup>44</sup>*Mayor's Annual Message*, 1930, 592.

<sup>45</sup>*Mayor's Annual Message*, 1929, 524.

<sup>46</sup>*Mayor's Annual Message*, 1930, 670.

<sup>47</sup>*Mayor's Annual Message*, 1929, 524. In 1928, Director Richard Weglein reported a record year for the port. 13,086 vessels, of over three million gross tons traveled up the newly finished thirty-five-foot channel in the Delaware. In 1929, Weglein, announced that 13,850 ships, representing an increase of gross tonnage of 636,973 tons arrived in the port.

<sup>48</sup>*Mayor's Annual Message*, 1930, 592.

<sup>49</sup>"City Prepares for Long-Term Lease of Piers," *Philadelphia Bulletin*, May 29, 1931.



By 1927, most port development was directed toward what had previously been less active parts of the port. Projects in the late 1920s included two enormous cargo terminals for Delaware and Oregon Avenues and a twenty-three acre cold storage facility in South Philadelphia.<sup>50</sup> In the late 1920s, municipal construction efforts focused on bulkheading the lower part of the Delaware River near its confluence with the Schuylkill River. This area now housed one-third of the city's industrial activity, and it provided better locations for the specialized facilities needed to handle bulk cargo such as oil.<sup>51</sup>

With the completion of the Girard Group piers, the Department of Wharves, Docks and Ferries concluded its projects along the central Philadelphia waterfront. From the mid-1920s on, the focus of future harbor improvements shifted to areas of the waterfront away from center city. While Piers 3 and 5 continued to be used as cargo piers into the 1960s, trends in shipping and transportation spelled an end to the utility of their design. With the development of containerized cargo handling methods, cargo could be pre-packed into standard hauling containers at a site remote from the waterfront. This system allowed rapid loading and unloading. Instead of requiring piers to shelter cargo from weather, the shipping industry needed large spaces for enormous cranes and for storing the containers. Additionally, the interstate highway system made trucks an efficient alternative to shipping, reducing the demand for urban piers. Because port development hinges on developments in technology and transportation systems, the Philadelphia port now lies south of the central city.

---

<sup>50</sup>*Mayor's Annual Message, 1927, 273.*

<sup>51</sup>*Mayor's Annual Message, 1930, 595.*



## CHAPTER SIX:

### CONTINUITY AND CHANGE AT THE PHILADELPHIA WATERFRONT

The history of the port, researched in this study, has been one of change as Philadelphia has continuously remade its waterfront in order to improve its economic competitiveness. This process continues today, with projects such as the development of Penn's Landing and the installation of new occupants in existing piers. This chapter discusses current plans for the central waterfront in light of the history of the waterfront documented in the previous chapters, and suggests how an understanding of the history of these four piers might aid in planning for their futures.

Philadelphia port development began when individuals constructed private wharves along the Delaware River shoreline. The city first became involved in waterfront development in the 1830s when it widened the narrow cartway along the water to twenty-five feet. In the 1890s, the city undertook an extensive waterfront infrastructure construction campaign which established the shoreline seen today. This project involved widening Delaware Avenue to one hundred and fifty feet, installing a concrete bulkhead all along the river, and constructing three municipal piers for public recreation and transportation use. In response to an increasing demand for shipping facilities, the city continued building progressively larger-scale and more complex piers.

In the late 1940s, trends in cargo handling, such as the development of larger cranes and ships and the increasing feasibility of trucking, led to the development of containerized cargo. Consequently, industrial harbors have decentralized as port facilities relocated to available tracts of inexpensive vacant land, typically far from city centers. This transition to containerization has moved the focus of Philadelphia's shipping industry to the southern part of the city's waterfront.



Faced with vacancy and deterioration of the central harbor in the 1960s, Philadelphia once again began a campaign to remake the waterfront. Since the shipping trade could no longer be the focus of development, the city emphasized the waterfront's value as an urban "amenity" rather than a key part of a transportation network. As the industrial economy gives way to a service based economy, amenities become increasingly important to urban economic development.

After the city closed the Race Street Pier pavilion and demolished the Chestnut Street Pier in 1921, one journalist wrote that: "Thousands of Philadelphians have missed the view of the river's activities and the opportunity for a breath of fresh air which once was theirs."<sup>1</sup> He continued, stating: "Something of the same sort, but on a far more adequate scale would not only be a boon of no mean order to residents of the congested river wards but a means of popularizing the cause of port improvements."<sup>2</sup> The writers' vision for public waterfront recreation areas was not realized until the 1960s, when the city undertook the Penn's Landing project.

The 1960 *Plan for the City of Philadelphia*, prepared by the City Planning Department under the guidance of Planning Director Edmund Bacon, proposed a large new park for the deteriorating central waterfront.<sup>3</sup> Studies for this new waterfront development, known as Penn's Landing, began shortly after the release of the comprehensive plan when the Department of Commerce commissioned a master plan for the site.<sup>4</sup> The development proposal, released in 1963, was intended to utilize the site's historic, aesthetic, and commercial appeal. An office tower, boat basin, museum, promenade and commercial

---

<sup>1</sup>Title unknown, *Philadelphia Bulletin*, July 14, 1923.

<sup>2</sup>Title unknown, *Philadelphia Bulletin*, July 14, 1923.

<sup>3</sup>City of Philadelphia Planning Department, *Plan for the City of Philadelphia*, 1960, 245.

<sup>4</sup>*Penn's Landing: A Master Plan for Philadelphia's Downtown Waterfront*. Prepared for the Department of Commerce of the City of Philadelphia, April 16, 1963.





structures would replace deteriorated existing structures, and "offer citizens' and visitors a vivid adventure in world commerce."<sup>5</sup>

Like most other renewal projects of its era, the Penn's Landing project involved removing existing structures. The city initiated the project by clearing away old piers and providing parking, a museum building, park space, and transportation links. By making these improvements, the city hoped to attract private developers willing to build commercial real estate. Although private developers have yet to construct any projects at Penn's Landing, the public boat landings and promenades provided Philadelphians and visitors with access to the river.

Construction of Interstate 95 concurrent with the Penn's Landing project impaired the historic connection between the waterfront and center city. Current city plans focus on relinking the waterfront with the rest of the city. Philadelphia's 1982 *Central Riverfront District Plan* developed this theme, stating that while the port enabled the city's growth, it now has the potential to provide employment and recreation.<sup>6</sup> The plan claimed that "the central riverfront can become, as it was in William Penn's Day, a part of the commercial, residential, and institutional core of Philadelphia."<sup>7</sup> Also, the city envisioned that the riverfront will be a place to "live, work, shop, dine, to be entertained and to have fun."<sup>8</sup>

Commercial interests had promoted the development of a belt line railroad in the 1880s in order to ensure that all shippers, not just the powerful railroad companies, would have rail access to the waterfront. While current plans for the waterfront also call for a connecting route along the waterfront, this connection, called the Riverwalk, will move

---

<sup>5</sup>*Penn's Landing*, 2.

<sup>6</sup>*Central Riverfront District Plan*, 1982, 1.

<sup>7</sup>*Central Riverfront District Plan*, 1982, 5.

<sup>8</sup>*Philadelphia Riverwalk*, (1983), 5.



pedestrians rather than freight.<sup>9</sup> The Riverwalk Plan, adopted by the city in 1983, proposes to link the waterfront together with a three mile long pedestrian right-of-way along the river's edge. In addition to a broad sidewalk, the Riverwalk will offer pedestrians attractive paving, street furniture, and trees. Construction of the Riverwalk is to occur incrementally as redevelopment takes place on parcels along the riverfront. Consequently, only a thousand feet of "Riverwalk" exists presently.

The adaptive reuse of Piers 3 into one hundred and seventy two apartments and Pier 5 into ninety-six condominiums in the 1980s points the way for future adaptive reuse projects at the waterfront. In exchange for the receipt of federal income tax credits, the developer had to ensure the project conformed to the Secretary of the Interior's Standards for Historic Properties. The entire shipping network of which the piers were a part when in active use is now gone. Consequently Alesker, Reiff and Dundon, the architects for the project, had to determine what the significant features of the pier were, as well as how to preserve these features in the adaptive reuse. The architects prioritized the features of the pier as follows: (1) inshore and outshore facades; (2) north and south facade structural expression; (3) cargo hoists; (4) second level vast interior and web-like roof structure; (5) plate girder frame of second floor; and (6) aprons and bollards. In formulating their design, the architects acknowledged the limitations of preservation in a situation where the context is substantially altered. According to the firm's description of its work, "At the piers of Penn's Landing we have not created a museum of early twentieth century cargo handling techniques, but we have helped to keep unbroken an historic thread in an environment which will assure its protection."<sup>10</sup>

---

<sup>9</sup>Philadelphia Riverwalk, 5.

<sup>10</sup>Bill Alesker, Speech at Pennsylvania State Preservation Conference, 1989.



Redeveloping the piers proved challenging. Faced with a wide and dimly-lit interior space, the architects removed the roof and focused the units on a light-filled courtyard. Trusses and girders at twenty-foot intervals defined the basic layout for the new units. While the architects left the steel framing members exposed in the units at Pier 3, they decided that at Pier 5, for reasons of cost and aesthetics, the steel frame would be exposed only in the central courtyard. The requirement to preserve the structural expression of the north and south facades presented another challenge, because new fenestration had to be designed to light the units. The architects succeeded in preserving the functional industrial look of the facades by using metal sash and corrugated steel exterior panels. However, this aesthetic was attained at the expense of some of the interior spaces since the windows in some of the units are set near the floor.

Other aspects of the adaptive reuse project included constructing moorage units between the piers and to the north of Pier 5. Also, the office spaces and cargo sheds running linearly along Delaware Avenue have been converted into a restaurant, the marina offices, and a cafe. Throughout, original exterior features and fixtures have been preserved. Although automobiles instead of railroad cars roll through the piers' large doorways, the structures convey a sense of their initial function. [Plates 9 to 14]

Pier 9 stands today little altered from its original appearance. The crumbling reinforced concrete facade, however, demonstrates that without repair work the pier will continue to deteriorate. The pier houses old trolleys, but the offices along the shed remain vacant. When Piers 3 and 5 were completed, the city considered the one thousand foot expanse of structures from Pier 9 to Pier 3 as one unified complex. However, the National Register nomination for Piers 3 and 5 did not include Pier 9. While this pier has historic significance as part of the World-War-I era port development initiatives, it is not certified as



a Landmark by the City of Philadelphia. Consequently, plans to alter or demolish Pier 9 will not have to undergo any review process.

The lack of historic certification for this pier suggests that traditional preservation protection has not been systematically extended to existing structures along the waterfront. While the current city plan for the area states that existing finger piers should be used, where possible, for developments, certification would be the best way to ensure that developers seriously consider continuity and the protection of integral structure lines in the historic fabric. Since the inshore and outshore facades are the most significant parts of the pier, a developer could certainly enjoy flexibility in adapting the interior space to a new use while preserving the historic facades. [Plates 6 to 8]

Of the four piers studied, the Race Street Pier probably has the most historical significance to the city because of its uses as a recreation facility, public hospital, and fireboat station. Ironically, Pier 11 is also the most deteriorated of the piers. Because the pavilion was removed in 1930, restoration of Pier 11 would be difficult to justify financially or intellectually. However, Pier 11's important history should not be forgotten. [Plates 1 to 5]

People have often presumed that recreation had not previously been an urban waterfront activity prior to the waterfront redevelopment projects popular in the 1970s and 1980s. For example, historian Marc Hershman, in his article "Ports over Time," asserts that providing public recreation, which became important to many ports in the 1970s and 1980s, was a new use for a public port.<sup>11</sup> The knowledge that, in the 1890s, Philadelphia provided its residents with a public waterfront recreation facility underscores the importance of maintaining that tradition at the waterfront in the future.

---

<sup>11</sup>Hershman, 52.





A promotional brochure written for Piers 3 and 5 in 1986 proclaimed optimistically that in a few years, every pier up and down Delaware Avenue would have "a new look and use."<sup>12</sup> As the redevelopment process evolves, the city must utilize available preservation tools such as documentation and certification to ensure that, as at Piers 3 and 5, the piers' "new look" respects their historical significance.

---

<sup>12</sup>Silver, Harting & Co. and Edward S. Brown, "Piers at Penn's Landing," (1986).



## CONCLUSIONS

By documenting the histories of four piers built in the first quarter of the twentieth century, this thesis initiates a comprehensive historical examination of the extant "port of history." The information presented in this thesis provides evidence about the evolution of the form and function of Philadelphia's central waterfront as it underwent sweeping changes between 1895 and 1925.

Knowledge of the context of early twentieth century port development was critical to a discussion of the significance of Piers 3, 5, 9, and 11. In the absence of previous studies of Philadelphia waterfront history, this thesis devises a contextual framework for drawing together the scattered historical data available about the port. More importantly, this framework highlights the historical circumstances and factors which stimulated the city to transform its central waterfront through successive building campaigns from the 1820s onward. This trend culminated in the turn of the century building campaign which gave the section of the waterfront housing Piers 3, 5, 9, and 11 the form it has today. This thesis also identifies the complex interaction of processes which have shaped the port and inscribed the landscape. These processes include technological innovation, the introduction of new transportation systems, cargo storage requirements, developments in ship design, recreation needs of the populace, changes in legislation and port government, and the emergence of new urban land use patterns.

Between 1895 and 1925, the pace of waterfront transformation was so rapid that the design and function of the Race Street Pier, the Cherry Street Pier, and the Girard Group, each represent a different municipal interpretation of the port's facility needs. City of Philadelphia Annual Reports from 1896 to 1925 provided an extensive and previously untapped source of documentation about the city's motivations for the construction of the



piers, the construction process, and the utilization of the completed structures.

The history and significance of the "City Pleasure Pavilion" on Pier 11, presented for the first time in this thesis, documents the significant recreational component of municipal waterfront development at the turn of the century. Pier 11 was important not only for its service to Philadelphians but also as a model for other cities. Virgil Bogue, an influential New York planner, considered Pier 11 an outstanding prototype for public recreation piers. Emphasizing the waterfront's historic role within the city, not only as a shipping and transportation hub but also as a place for public recreation, challenges prevalent ideas that the public appeal of urban waterfront recreation is a modern discovery. While the city demolished the most historically significant parts of the Race Street Pier in 1930, knowledge of the history of this pier can inspire and challenge new developments to equal its provision of public amenity.

This thesis approached Piers 3 and 5 contextually as parts of a complex system which included ships and land based transportation as well as the piers themselves. Because cargo-handling processes determined much of the form and landscape of the port, they merit thorough study. Previously, these piers had been celebrated primarily for the architectural merit of their facades. In contrast, this study focused on the piers as tools and links in the cargo-handling process. Understanding the form of the Girard Group as it related to its function in the managing of cargo required studying treatises on cargo handling and pier management written contemporaneously with the construction of these piers. These informative primary sources, written not long after Frederick Taylor popularized the concept of scientific management in 1912, provided the key to understanding the significance of the piers' layout and design features for maximizing the efficiency of pier operations.



The information found in the course of this research illustrates the wide range of human activity at these piers and the role this part of the waterfront played in urban life. At Race Street, mothers' brought sick children to the Baby Refuge, Philadelphians boarded steamboats for trips up the Delaware River, young factory workers played basketball at the pier on summer nights, and city fire and police boat crews reported for work. At Cherry Street, the arrival of a boat load of bananas would trigger a frenzy of activity as men moved the fruit into an endless stream of carts and trucks. In the adjacent offices, managers would process orders and coordinate deliveries. The Girard Group Piers witnessed tremendous activity as hundreds of men crowded the pier aprons and decks to speed the unloading of a ship. Cargo flew overhead on ropes suspended from the top of the pier, while internally, electric trucks, chutes, and conveyors moved boxes, bags, and bales into waiting railroad cars.

With the renovation of Piers 3 and 5, Philadelphia's central waterfront has already entered its next stage of development, which the city plans as a mixture of commercial, residential, and recreational uses. As this new development continues, considered study of the riverfront's historic resources, particularly the remaining piers, must certainly be emphasized in the planning process. Additionally, an appreciation of the waterfront's significant and continuous role in providing enjoyment and employment to Philadelphians since William Penn's day must inform the planning efforts. If planners, developers, and the public do not value these historic resources, in the rush to transform the waterfront once again the city could lose significant legacies from its past. This thesis, while focused on one particular section of the waterfront, may help point the way for those interested in taking a wider look at the venerable, changing, and dynamic relationship between Philadelphia and its Delaware River.







**FIGURES**







FIGURE 1.1 The Blue Anchor Tavern.  
From Watson, *Annals of the City of Philadelphia*, 1836.  
Facing page 121.



FIGURE 1.2 Warehouse (1705) at corner of Delaware Avenue and Race Street.  
From Looney, *Old Philadelphia in Early Photographs*, page 36.



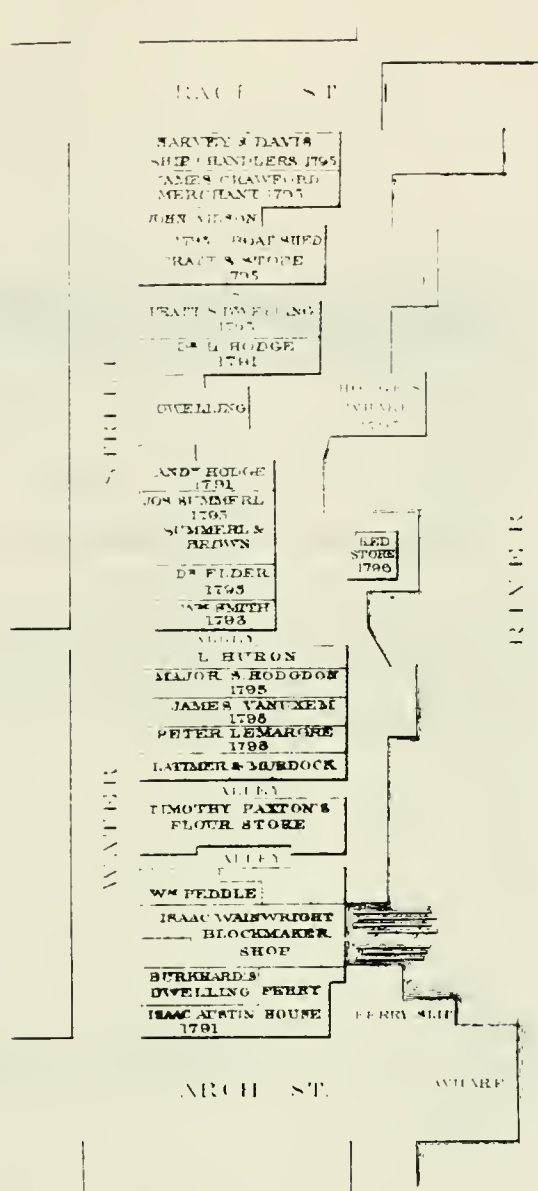


FIGURE 1.3

Abraham Ritter's map of buildings at the Delaware River Waterfront. From Ritter, *Philadelphia and Her Merchants*, 1860.



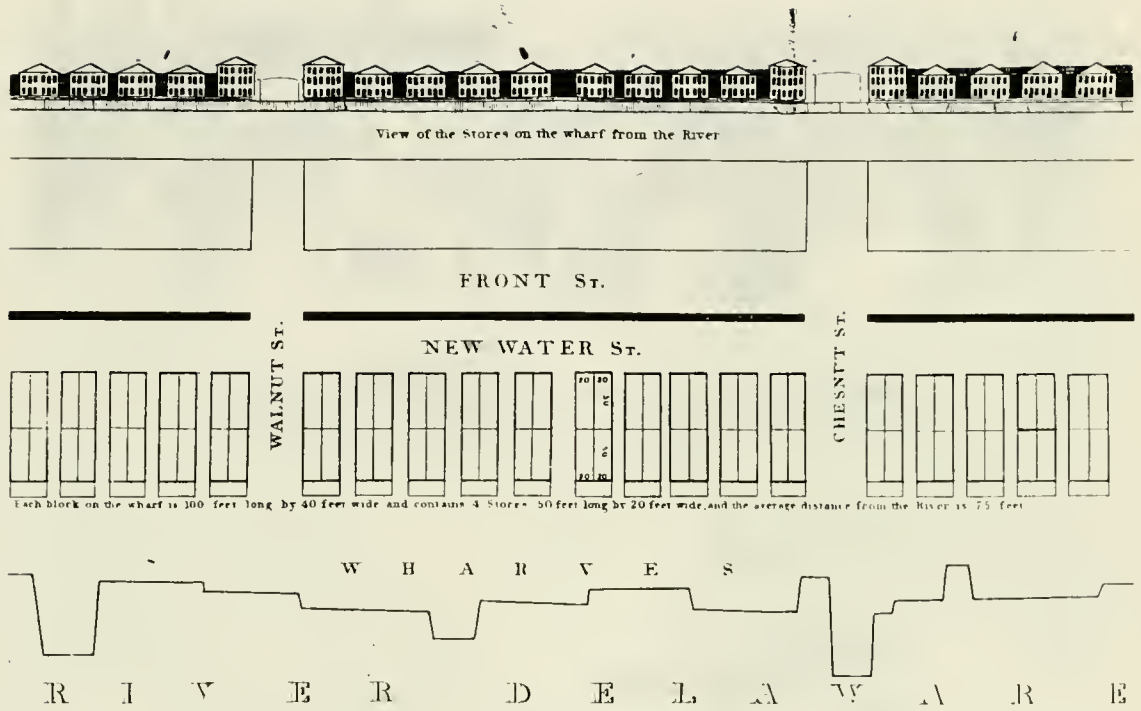


FIGURE 1.4 Paul Beck's 1820 Plan for Delaware River Wharves. From Ritter, *Philadelphia and Her Merchants*, 1860.







FIGURE 1.5 Philadelphia Skating on the Delaware River, 1856.  
From Smith, *Philadelphia on the River*, 1986, page 78.



FIGURE 1.6 Pier 8 at Cherry Street circa 1880.  
From Smith, *Philadelphia on the River*, 1986, page 65.





FIGURE 2.1 Delaware Avenue Looking North from Market Street, circa 1890. From Looney, *Old Philadelphia in Early Photographs*.





FIGURE 2.2 Chestnut Street Pier, circa 1920.  
Temple Urban Archives.



FIGURE 2.3 Race Street Pier, circa 1912.  
From Taylor, *Port and City of Philadelphia*, 1912, page 28.



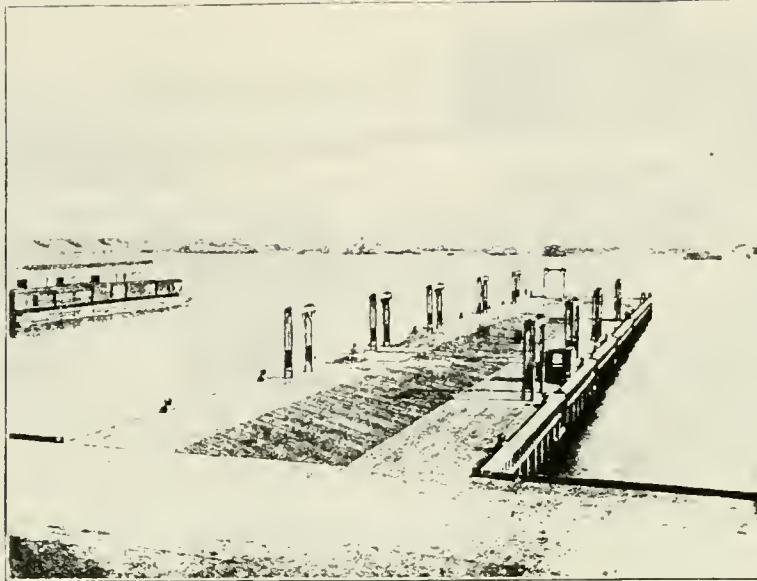


FIGURE 2.4 Substructure of Race Street Pier, 1901.  
From Webster, *Development of the Delaware River Waterfront*, 1902.

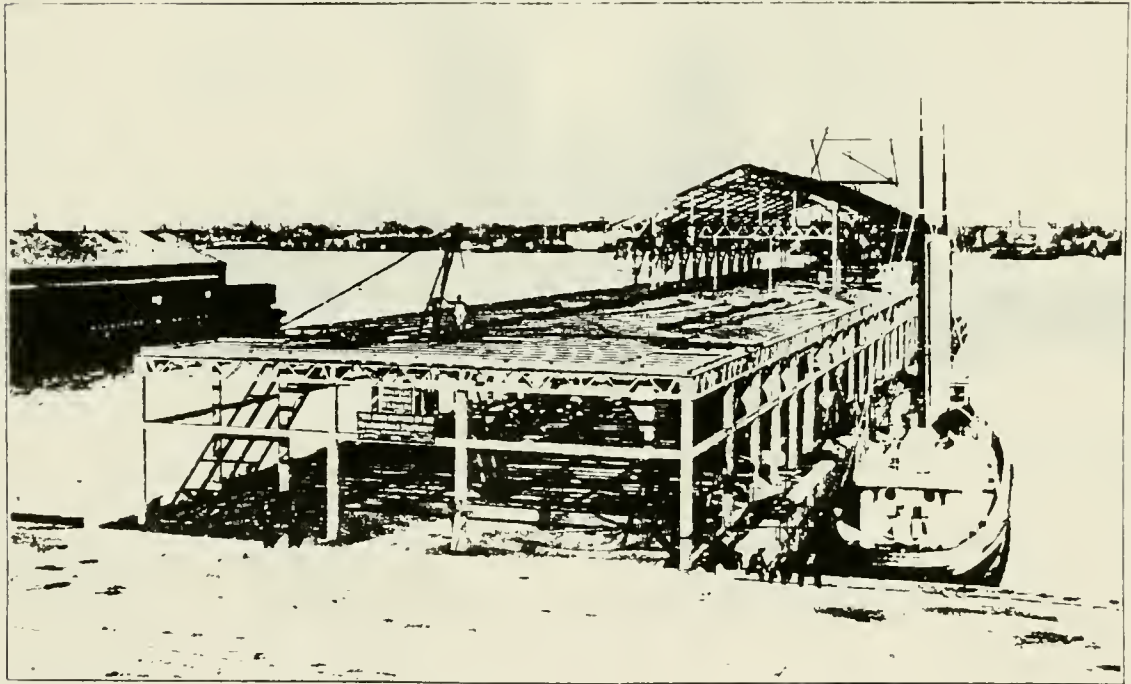
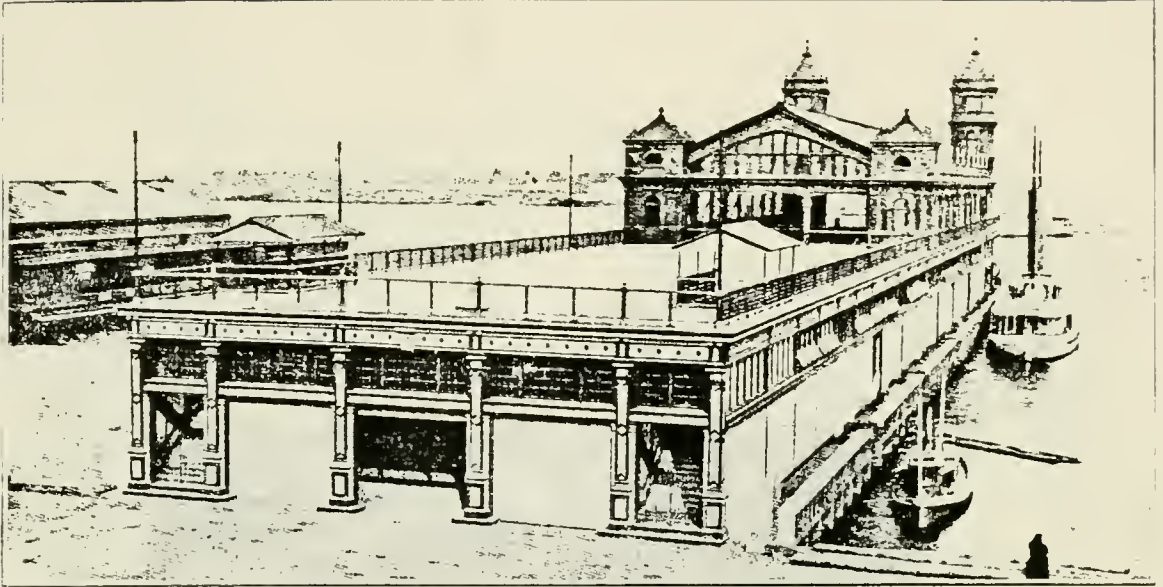


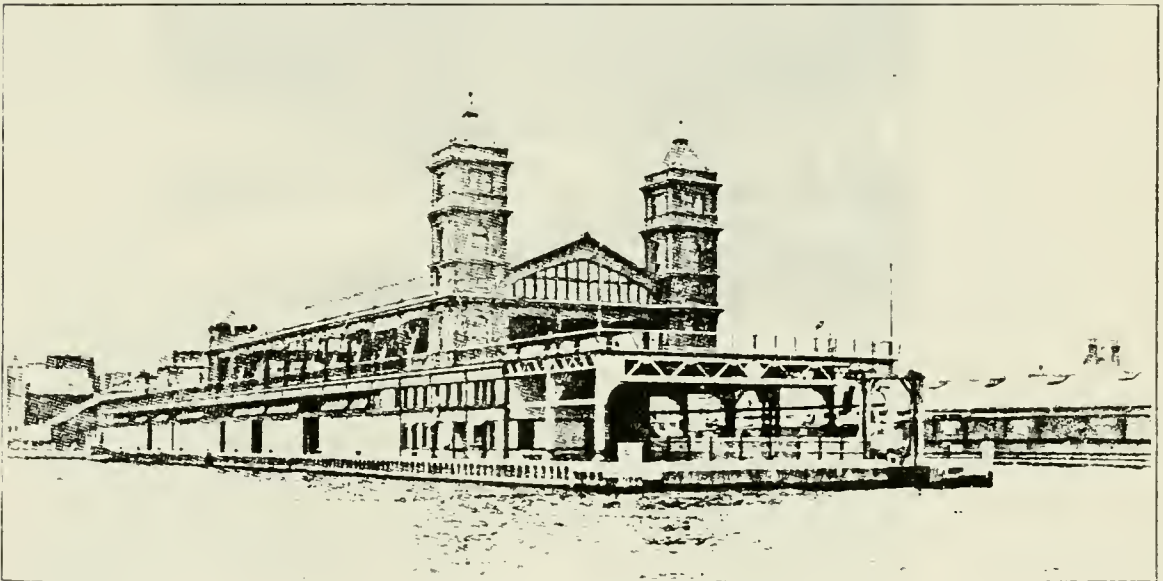
FIGURE 2.5 Race Street Pier, 1901.  
From Webster, *Development of the Delaware River Waterfront*, 1902.







Recreation Pier, Philadelphia



Recreation Pier, Philadelphia

FIGURE 2.6, 2.7 Race Street Pier.  
From Bogue, *Plan for the City of Seattle*, 1911.



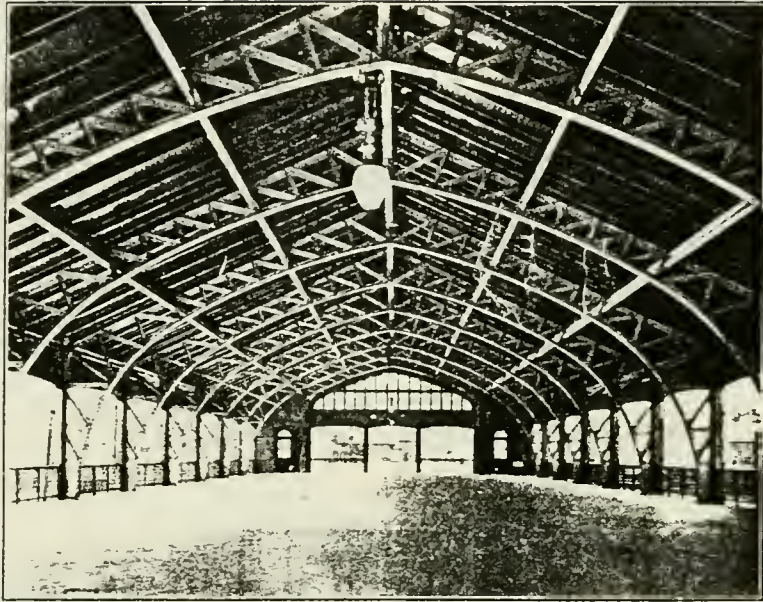


FIGURE 2.8

Race Street Pier Pavilion.

From Webster, *Development of the Delaware River Waterfront*, 1902.





FIGURE 2.9 Steeplechase Pier at Atlantic City.  
From Funnell, *By the Beautiful Sea*, 1975, page xxvii.

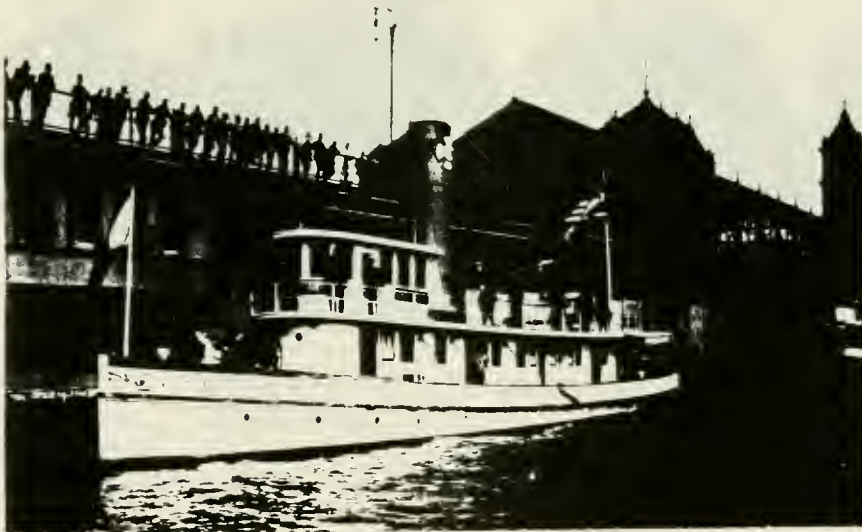


FIGURE 2.10 Fireboat "Edwin S. Stuart" at Race Street Pier, 1908.  
From Smith, *Philadelphia on the River*, page 30.





FIGURE 2.11 Mayor Moore at Reopening of Race Street Pier, 1931.  
Temple Urban Archives.





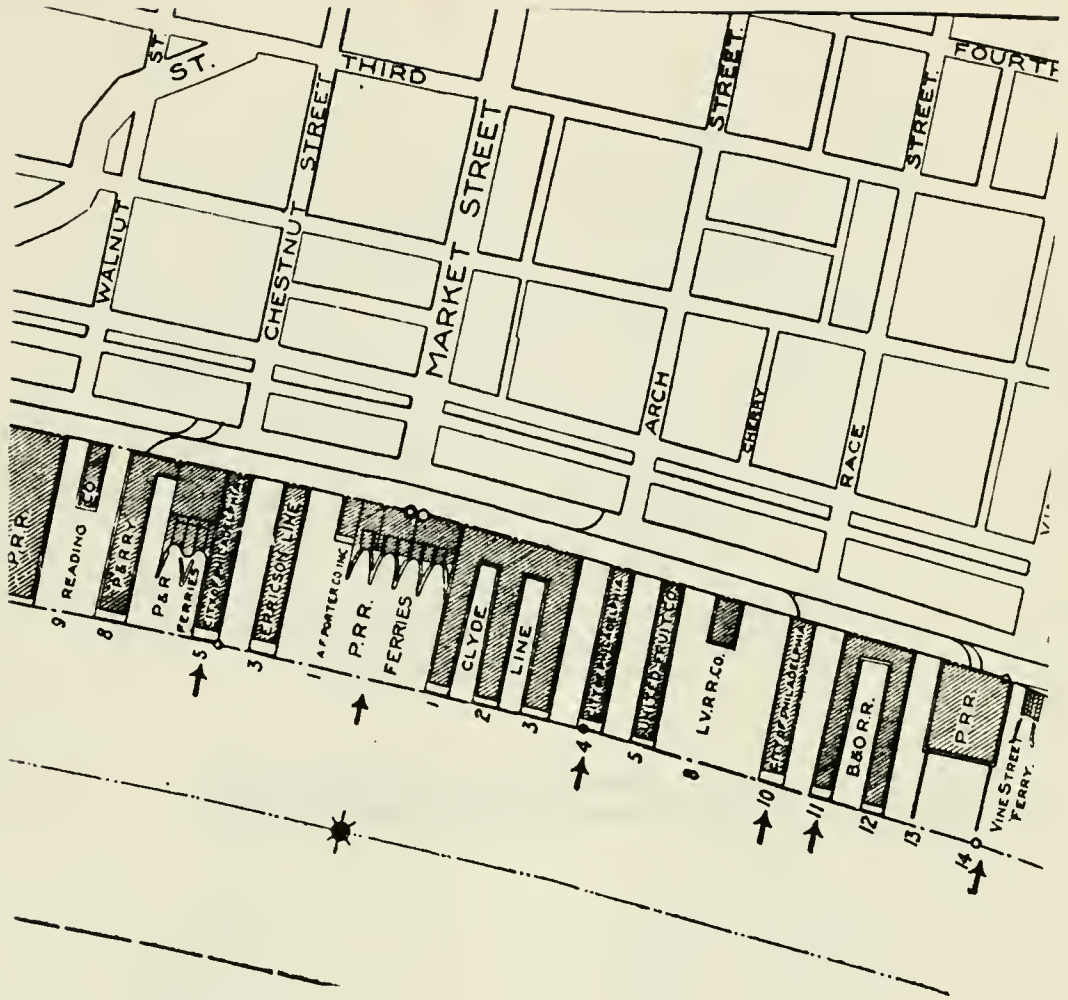


FIGURE 3.1 Delaware River Waterfront, 1914.  
Free Library of Philadelphia.



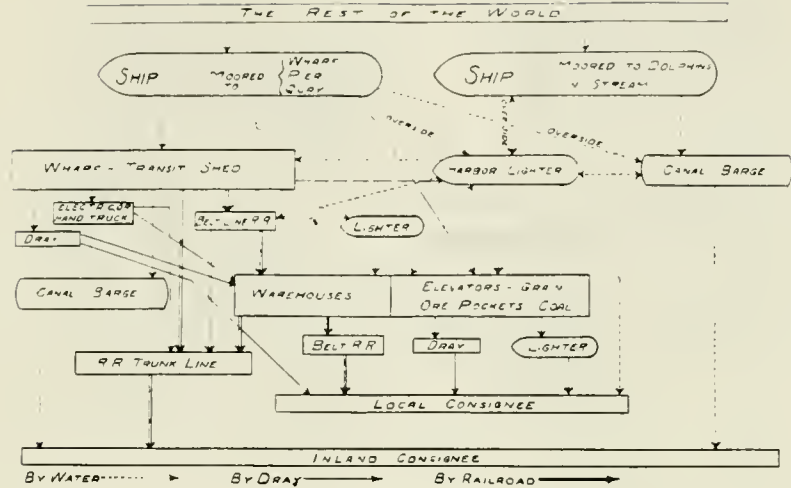


Fig. 12.—Port movement of inbound freight.

FIGURE 4.1

Diagram of cargo handling process.  
From MacElwee, *Ports and Terminal Facilities*, 1918, page 32.

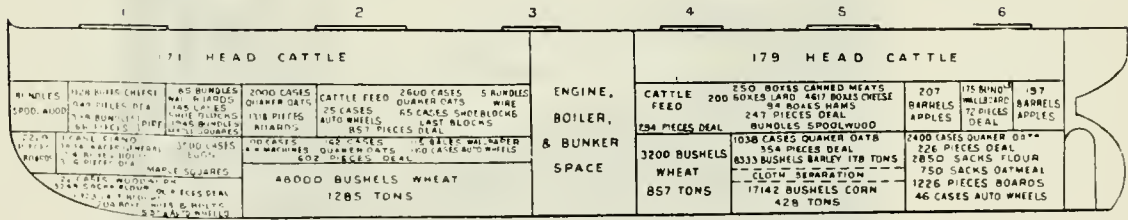


FIG. 5.—Diagram of vessel loaded with general cargo.

FIGURE 4.2

Diagram of vessel loaded with general cargo.  
From Cunningham, *Cargo Handling at Ports*, 1924, page 17.



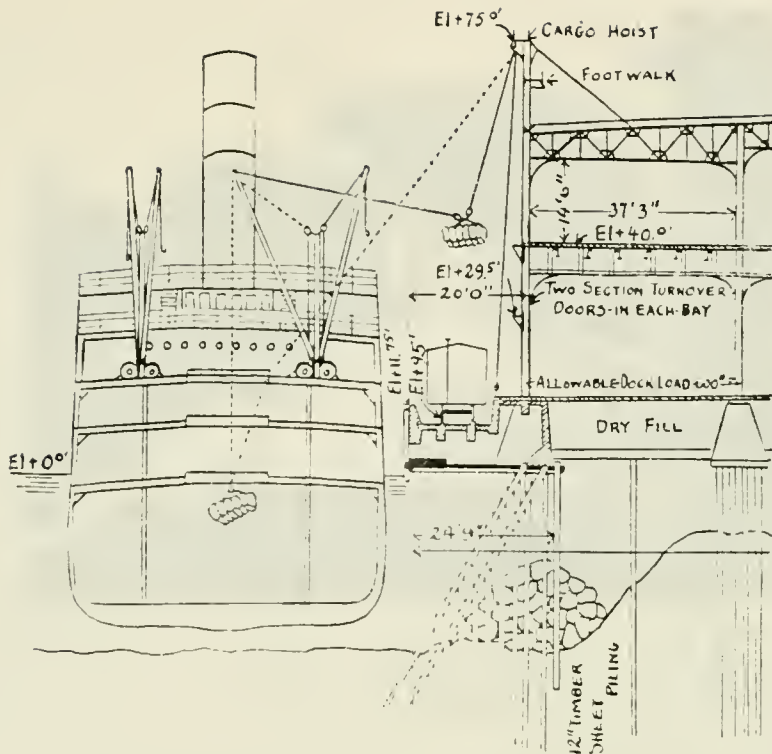


FIGURE 4.3 Diagram of Burtoning method.  
 From MacElwee and Taylor, *Wharf Management, Stevedoring, and Stowage*, 1921, page 118.



FIGURE 4.4 Burtoning system in use.  
 From Cunningham, *Cargo Handling at Ports*, 1924, facing page 74.





FIG. 72.—Loading goods at New York into railway cars on car-transfer floats for transport across the Hudson River.

[See p. 93.]



FIGURE 4.5

Hand truck (above) and electric truck (below) in use.  
From Cunningham, *Cargo Handling at Ports*, 1924, facing page 94.





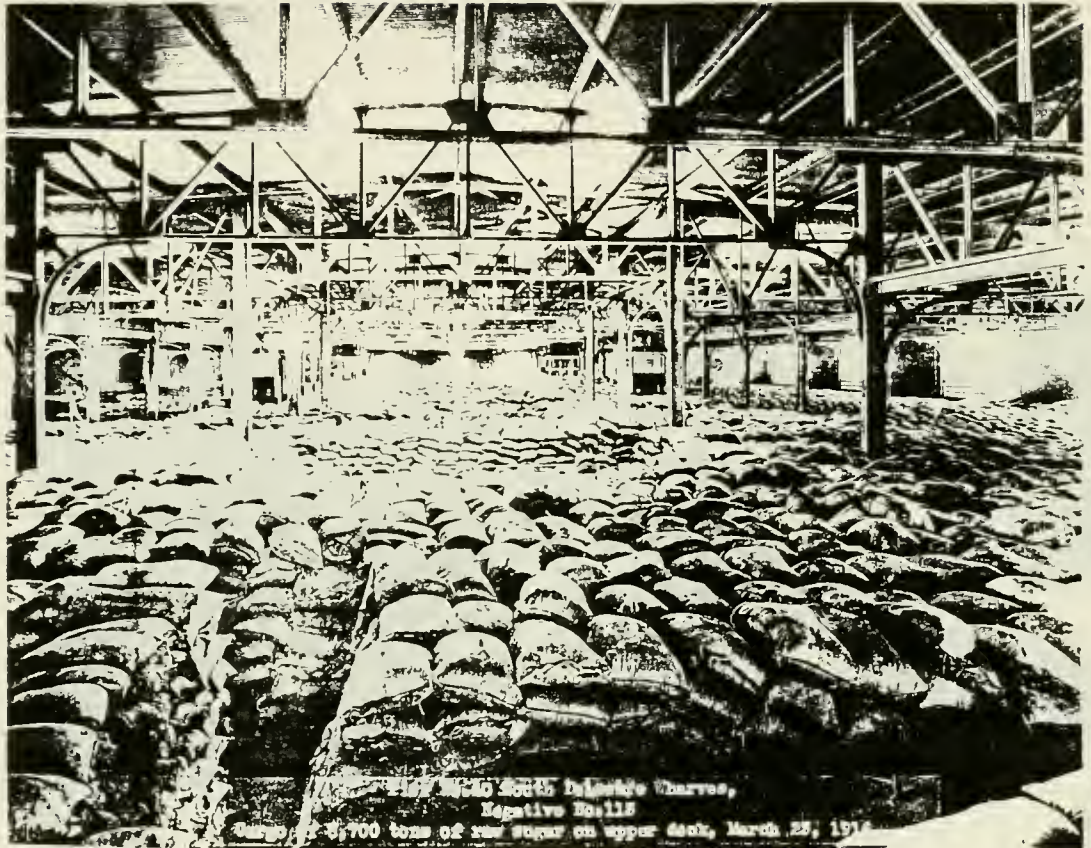


FIGURE 4.6 Pier interior loaded with sugar. Openings provide access to cargo chutes.  
Temple University Urban Archives.



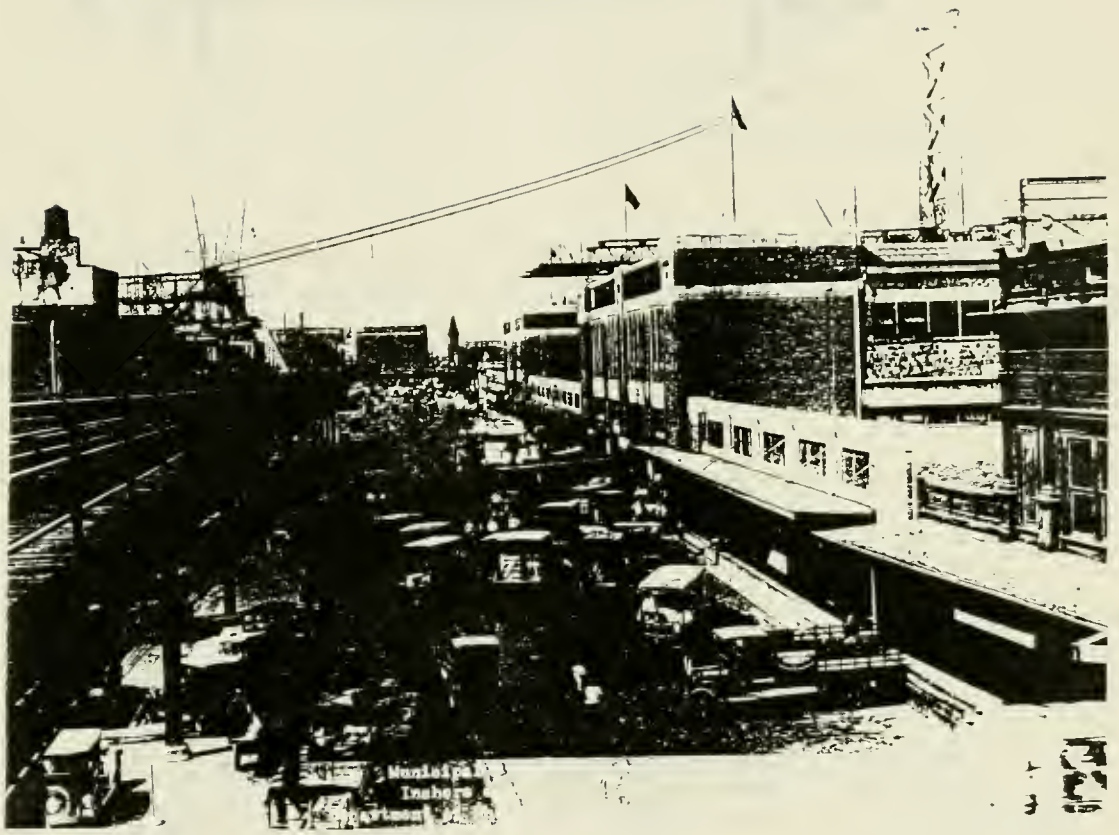
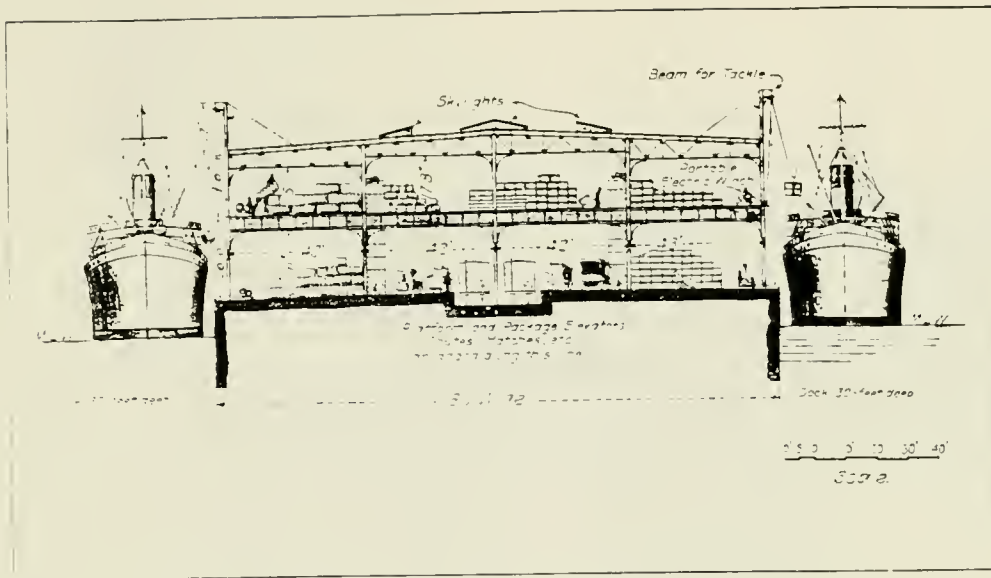


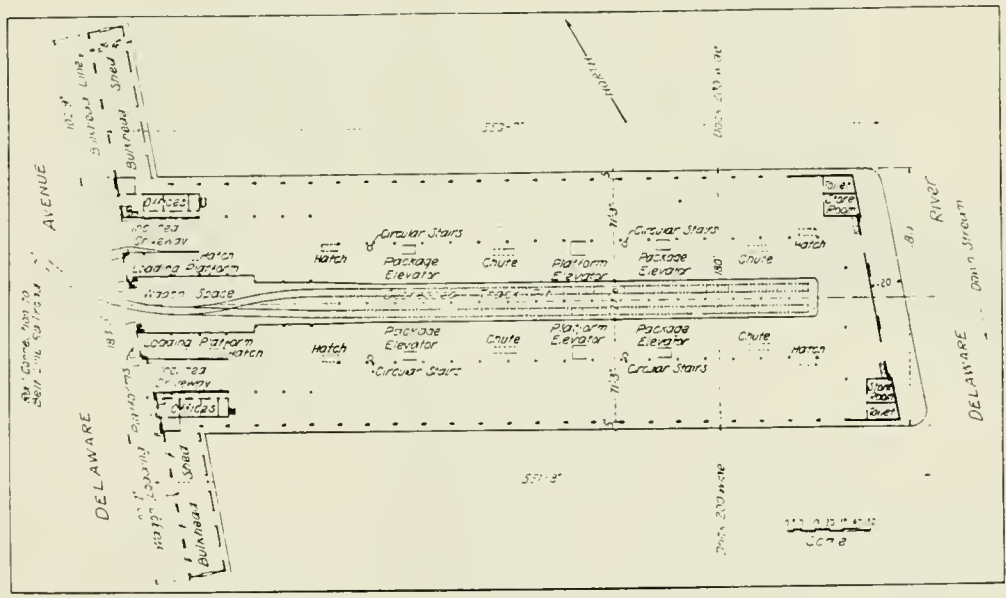
FIGURE 5.1 View of the Girard Group Piers, 1923.  
Temple University Urban Archives.





TYPICAL CROSS SECTION THROUGH PIER-SOUTHWARK GROUP

FIGURE 5.2 Cross section of Southwark Pier.  
Temple University Urban Archives.



MAIN DECK PLAN OF PIER-SOUTHWARK GROUP

FIGURE 5.3 Plan of Southwark Pier.  
Temple University Urban Archives.



**PLATES**







PLATE 1

The Race Street Pier, west facade



PLATE 2

The Race Street Pier, south facade





PLATE 3

Race Street Pier, corner column detail





PLATE 4

Race Street Pier, west facade, doorway detail





PLATE 5

Race Street Pier, west facade, cornice detail







PLATE 6

Pier 9, west facade and connection to Pier 5

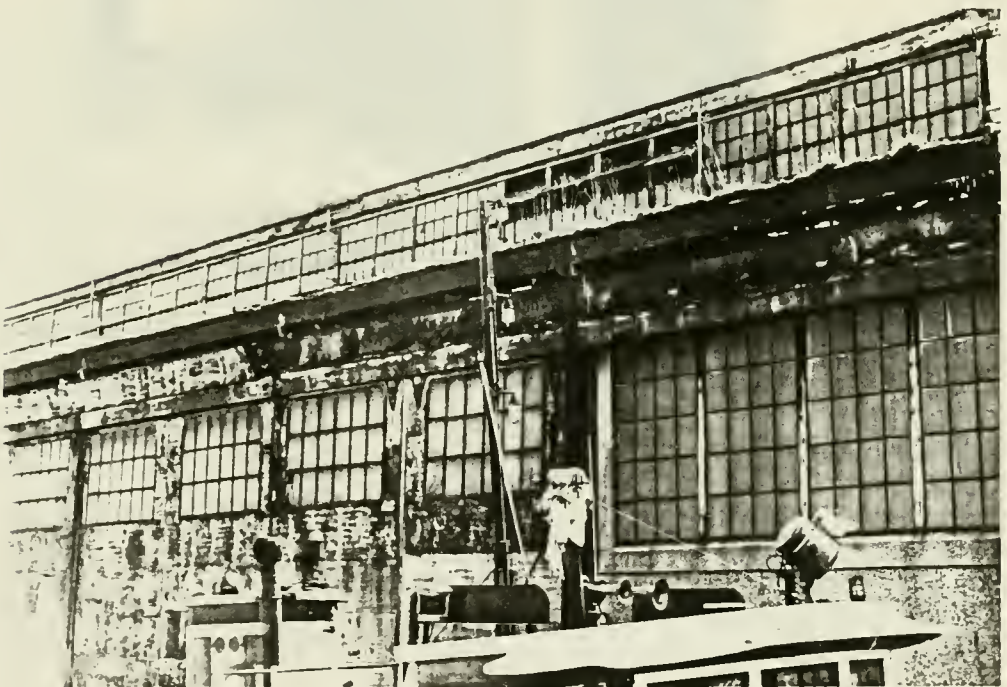


PLATE 7

Pier 9, north facade doors and monitor



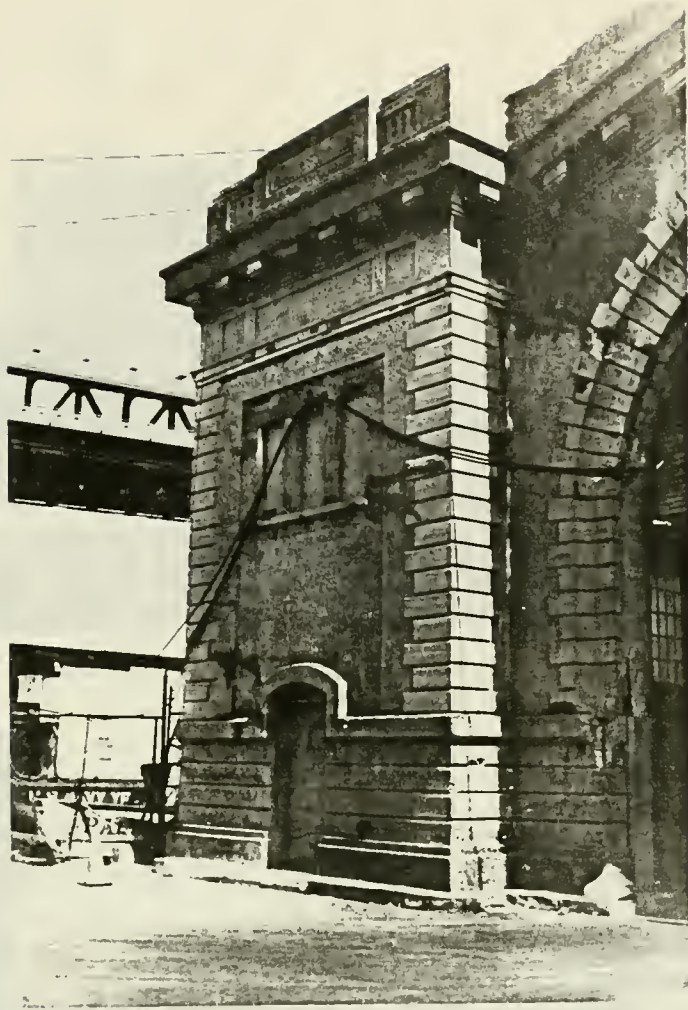


PLATE 8

Pier 9, west facade, left corner





PLATE 9      Pier 5, west facade

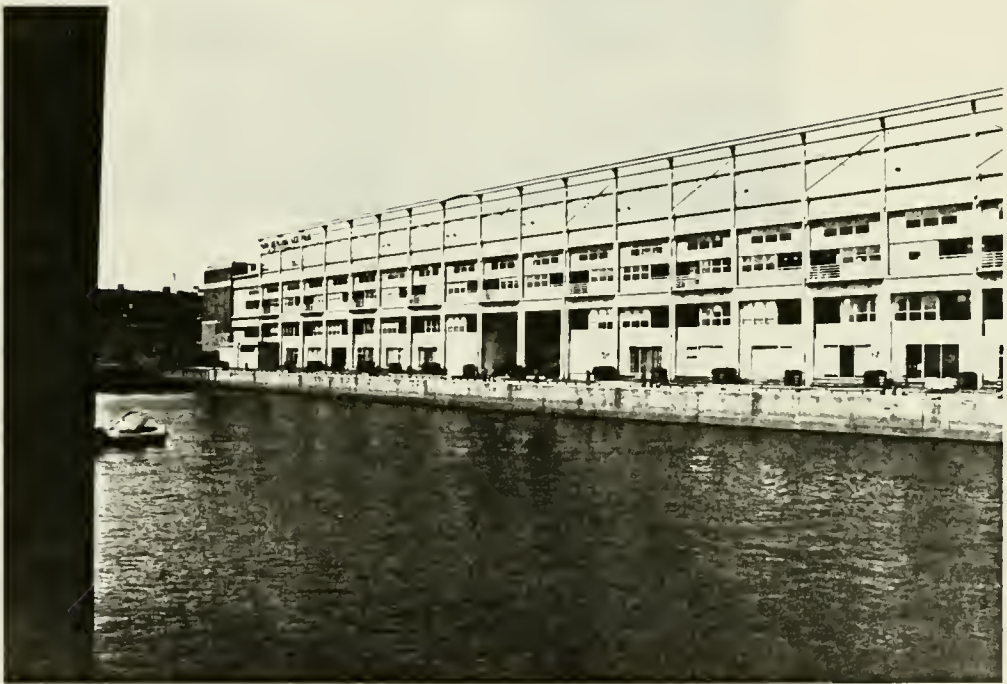


PLATE 10      Pier 3, south facade



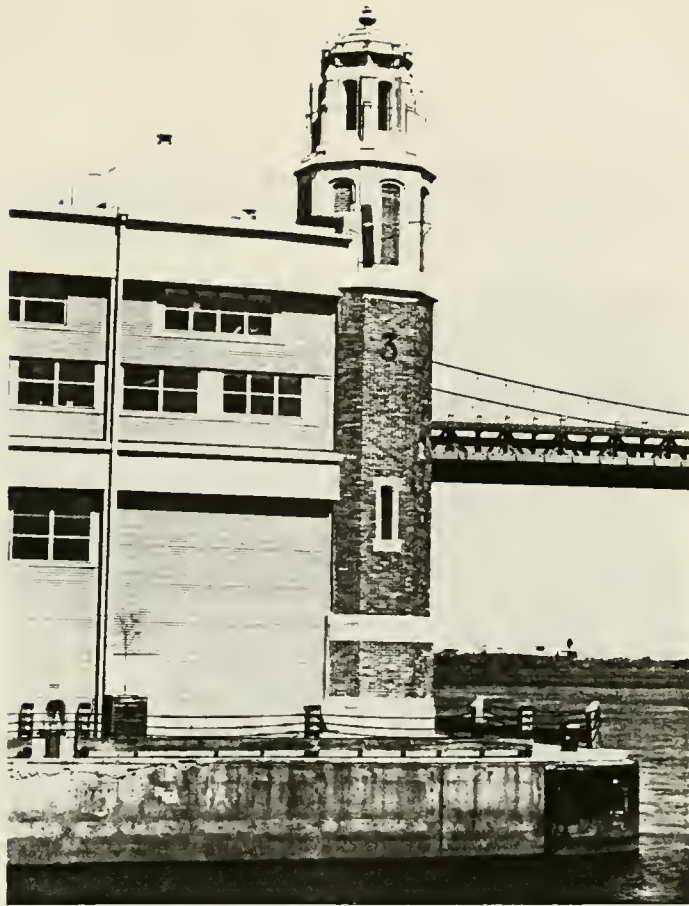


PLATE 11 Pier 3, south facade, view of outshore tower





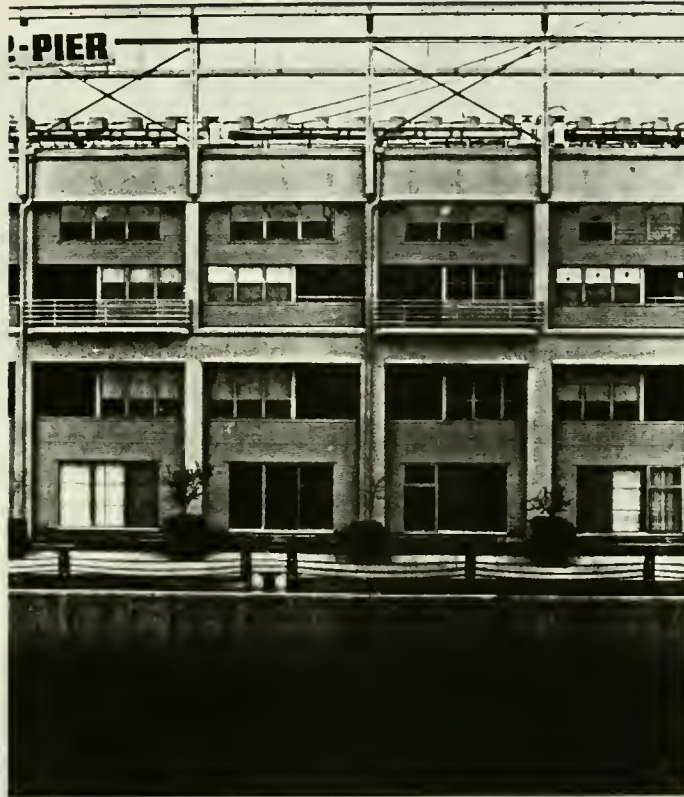


PLATE 12

Pier 3, south facade, detail of cargo masts





PLATE 13      Cargo shed north of Pier 5



PLATE 14      Former United Fruit Company Offices



## BIBLIOGRAPHY

- Albion, Robert G. *The Rise of the New York Port, 1815-1860*. New York: Charles Scribners' Sons, 1939.
- \_\_\_\_\_. "Sailing Vessels," in *Encyclopedia Americana*. New York: Grolier Inc. 1986.
- Anderson, Nels. *The Industrial Urban Community: Historical and Comparative Perspectives*. Englewood, NJ: Prentice Hall, 1971.
- Anderson, Ross. "Metropolis," in *Pacific Magazine*. July 7, 1991, 6-12.
- Barnes, Charles B. *The Longshoremen*. New York, Survey Associates, Inc., 1915.
- Bauer, K. Jack. *A Maritime History of the United States: The Role of America's Seas and Waterways*. Columbia, SC: University of South Carolina, 1965.
- Baynard, Frank O. "Fuel Powered Vessels," in *Encyclopedia Americana*. New York: Grolier Inc.: 1986.
- Bogue, Virgil. *Plan for the City of Seattle*. Seattle, 1911.
- Boston Looks Seaward : The Story of the Port. 1630-1940*. The Writer's Program. Boston: B. Humphries, 1941.
- Brandt, Francis Burke. *The Majestic Delaware: The Nation's Foremost Historic River*. Philadelphia: Brandt and Gumm, 1929.
- Burke, Padraic. *History of the Port of Seattle*. Seattle: Port of Seattle, 1976.
- Butttenwieser, Anne. *Manhattan Water-Bound. Planning and Developing Manhattan's Waterfront from the Seventeenth Century to the Present*. New York: New York University Press, 1987.
- Catalogue of Exhibit of J. Welles Henderson Collection of the Port of Philadelphia..* Philadelphia: Free Library of Philadelphia, 1956.
- Clapp, Edwin. *Port of Boston*. New Haven: Yale University Press, 1916.
- Collins, Francis A. *Our Harbors and Inland Waterways*. New York: The Century Co., 1924.
- Cunningham, Bryson. *Cargo Handling at Ports*. New York: John Wiley & Sons, 1924.



- Diary of a Voyage from Rotterdam to Philadelphia, in 1728.* Author unknown. Julius Sachse, Trans. Philadelphia: Pennsylvania German Society, 1908.
- Ditzel, Paul. *Fireboats.* New Albany, Indiana: Conway Enterprises, 1989.
- Duffey, John. *Epidemics in Colonial America..* Baton Rouge: Louisiana State University Press, 1953.
- Emerson, Hugh Norman. *Eighty-Eight Nautical Miles on the Delaware: A History of the Philadelphia Maritime Exchange 1875-1950.* Philadelphia: s.n., 1950.
- Freedly, Edwin. *Philadelphia and its Manufactures.* Philadelphia: Edward Young, 1858.
- Funnell, Charles E. *By the Beautiful Sea: The Rise and High Times of That Great American Resort, Atlantic City.* New York: Alfred A. Knopf, 1975.
- Gilchrist, David T. *The Growth of the Seaport Cities, 1790-1825.* Charlottesville: University of Virginia Press, 1967.
- Hershman, Marc J. ed. *Urban Ports and Harbor Management.* New York: Taylor and Francis, 1988.
- Hoyle, B.S. D.A. Pinder and M.S. Husain eds. *Revitalizing the Waterfront: International Dimensions of Dockland Redevelopment.* London: Belhaven Press, 1988.
- Hugil, Stan. *Sailortown.* New York: E.P. Dutton & Co., 1967.
- Jackson, Gordon. *The History and Archaeology of Ports.* Surrey: World's Work, 1983.
- Johnson, Harry and Frederick S. Lightfoot. *Maritime New York in 19th Century Photographs.* New York: Dover Publications, Inc. 1980.
- Kasson, John F. *Amusing the Million:s: Coney Island at the Turn of the Century.* New York: Hill and Wang, 1978.
- Kellogg, Charles D. "Child Life in City and County," in *Journal of Social Science*, Number XXI (August 1886), 207-223.
- Kemp, Peter. *Encyclopedia of Ships and Seafaring.* New York: Crown Publishers, 1980.
- Kidney, Walter C. *Working Places: The Adaptive Use of Industrial Buildings.* Pittsburgh: Ober Park Associates, 1976.
- Looney, Robert. *Old Philadelphia in Early Photographs.* New York: Dover Publications, 1976.
- MacElwee, Roy S. *Ports and Terminal Facilities.* New York: McGraw Hill, 1918.





- MacElwee, Roy S and Thomas S. Taylor. *Wharf Management, Stevedoring & Storage*. New York: Appleton & Co. 1921.
- Mallowe, Mike. "Welcome to the River City." *Philadelphia Magazine*, June 1988, 86.
- Mann, Roy. *Rivers in the City*. New York City: Praeger Publications, 1973.
- New York Writers' Program. *A Maritime History of New York*. New York: Haskell House Publishers, 1973.
- Park, William Hallock. *Public Health and Hygiene*. Philadelphia: Leas and Febiger, 1920.
- Peiss, Kathy. *Cheap Amusements: Working Women and Leisure in NYC 1880-1920*. Philadelphia: Temple University Press, 1986.
- Petrillo, Joseph E. and Peter Grenell, eds. *The Urban Edge: Where the City Meets the Sea*. Sacramento: California State Coastal Conservancy, 1985.
- Rudolph, Wolfgang. *Harbor and Town: A Maritime Cultural History*. Leipzig: Edition Leipzig, 1980.
- Smith, Philip Chadwick Foster. *Philadelphia on the River*. Philadelphia: Philadelphia Maritime Museum, 1986.
- Steinberg, Rolf. *Dead Tech: A Guide to the Archaeology of Tomorrow*. San Francisco: Sierra Club Books, 1982.
- Taylor, Fredrick Winslow. *The Principles of Scientific Management*. Norwood, Mass.: Plimpton Press, 1911.
- Thayer, Theodore. "Town Into City, 1746-1765," in *Philadelphia, A 300 Year History*. New York, W.N. Norton Co., 1982.
- Tolles, Frederick B. *Meeting House and Counting House*. Chapel Hill: University of North Carolina, 1948.
- Trachtenberg, Alan. *The Incorporation of America*. New York: Hill and Wang, 1982.
- Tyler, David Budlong. *The American Clyde*. Wilmington: University of Delaware Press, 1958.
- \_\_\_\_\_. *The Bay & River, Delaware: A Pictorial History*. Cambridge, Md: Cornell Maritime Press, 1955.
- Urban Waterfront Revitalization: The Role of Recreation and Heritage, Volumes I & II*. Washington: Department of Interior, 1981.



Watson, John F. *Annals of Philadelphia*. Philadelphia: 1830.

Wiebe, Robert H. *Seach for Order 1877-1920*. New York: Hill and Wang, 1967.

Wingate, Charles F. "The Health of American Cities," in *The Journal of Social Science* Number XXII, June 1887, pp. 90-99.

Wolf, Edwin. *Philadelphia, Portrait of an American City*. Harrisburg: Stackpole Books, 1983.

### **Descriptions of the Philadelphia Waterfront:**

*Digest of the Laws, Decisions and Rules Relating to the Board of Wardens for the Port of Philadelphia*. Assembled by Christian Ross, Master Warden, 1895.

Furlong, Captain Lawrence. *American Coast Pilot*, Newburyport, Mass.: Edmund M. Blunt, 4th Ed., 1815.

Haupt, Lewis M. *The Port of Philadelphia*. Reprinted from: *The Journal of the Franklin Institute*. (May 1892) Philadelphia, University of Pennsylvania.

*Jackson's Philadelphia Year Book, 1920-21*. Philadelphia: Joseph Jackson, 1920.

*Laws Relative to the Board of Wardens of the Port of Philadelphia*. Compiled by Alexander P. Colesberry, Harrisburg, 1878.

*Mayor's Annual Messages 1986-1930*. Philadelphia: City of Philadelphia.

Pierson, Ward W. "Philadelphia" in "Port Administration and Harbor Facilities, A Symposium." *Annals of the American Academy of Political and Social Science*. Volume 29, March, 1907.

*Philadelphia*. United Commercial Travelers Souvenir. Philadelphia, 1924.

*Philadelphia--Guide to the City*. Philadelphia: Philadelphia Rotary, 1920.

*Philadelphia and Its Environs: A Guide to the City and Surroundings*. Philadelphia: J.B. Lippincott, 1893.

*Philadelphia Maritime Exchange Annual Reports, 1907-1931*. Philadelphia: Philadelphia Maritime Exchange.

*Philadelphia Shipping Manual*. Philadelphia Maritime Exchange. Philadelphia: 1880.



*Port of Philadelphia Day.* Philadelphia: Port of Philadelphia Day Committee. June 20, 1940.

*Ports of Philadelphia.* Philadelphia: Ameriport, 1971.

Ritter, Abraham. *Philadelphia and Her Merchants.* Philadelphia: 1860.

*Strangers' Guide to Philadelphia.* Philadelphia: Lindsay & Blackston, 1860.

Taylor, Frank. *Handbook of the Lower Delaware River.* Philadelphia: Philadelphia Maritime Exchange, 1895.

Taylor, Frank H. *Port and City of Philadelphia.* Philadelphia: Local Committee for the 12th International Congress of Navigation, 1911.

Webster, George Smedley. *Development of the Delaware River Waterfront of Philadelphia, including a Description of Bulkhead, Street and Pier Construction.* Philadelphia, 1902.

*Where and How to Get There in Philadelphia.* Philadelphia: Francis Brothers, 1905.

No. 428 March Term 1898. Court of Common Pleas, No. 1. *Petition of Alice B. Willing from Decision of Port Wardens of March 7, 1898 to construct a Pier in the River Delaware at the foot of Race Street.*

No. 429 March Term 1898. Court of Common Pleas, No. 1. *Petition of Isidor Levin from Decision of Port Wardens of March 7, 1898 to construct a Pier in the River Delaware at the foot of Race Street.*

**Publications of the Philadelphia Department of Wharves, Docks, and Ferries:**

*Official History of Department of Wharves, Docks and Ferries for 1908.*

*Port of Philadelphia--Its Facilities and Advantages,* 1914.

*On the Delaware River,* 1922.

*Port of Philadelphia Airgram,* 1923.

*The Delaware Avenue,* 1925.

*Port of Philadelphia: Its history, advantages, and facilities.,* 1926.

*Port of Philadelphia,* 1930.

*Port of Philadelphia Steamship Connections with all Parts of the World,* 1930.



### **Plans for the Philadelphia Waterfront:**

- Act for establishing a health office for securing the city and port of Philadelphia from the intrusion of pestilential and contagious diseases.* Philadelphia, 1799.
- Beck, Paul. *A proposal for altering the eastern front of the City of Philadelphia, with a view to prevent the recurrence of malignant disorders.* Philadelphia: William Fry, 1820.
- Committee of Seventy. *Ports Governance Study.* Philadelphia, 1980.
- Committee of Seventy. *Riverfront Renaissance.* Philadelphia, 1981.
- Delaware River Joint Commission. *Delaware River Port Development.* Philadelphia: 1948.
- Penn's Landing: A Master Plan for Philadelphia's Downtown Waterfront.* Prepared for the Department of Commerce of the City of Philadelphia. Philadelphia, 1963.
- Philadelphia City Planning Commission. *Central Riverfront District Plan.* Philadelphia, 1982.
- \_\_\_\_\_. *Comprehensive Plan for the City of Philadelphia.* Philadelphia, 1960.
- \_\_\_\_\_. *Philadelphia's plan for river recreation.* Philadelphia, 1984.
- \_\_\_\_\_. *Philadelphia's River Resources.* Philadelphia, 1985.
- \_\_\_\_\_. *Plan for Philadelphia Riverfronts.* Philadelphia, 1985.
- \_\_\_\_\_. *Philadelphia, Riverwalk. Planning and Design Standards.* Philadelphia, 1983.
- Report of the Committee Appointed December 4, 1858. Wharfage and Dockage Question.* Philadelphia, 1859.
- Resource Protection Plan: A Framework for Decision-Making in Protecting the Cultural Resources of the Pennsylvania/Delaware River Coastal Zone.* Pennsylvania Historical and Museum Commission: 1981.





## **Maps and Atlases**

City of Philadelphia Fire Insurance Atlases: 1860, 1875, 1885, 1895, 1908, 1915

Map of Philadelphia Waterfront. Chart showing Harbor of Philadelphia, Delaware and Schuylkill Rivers. Department of Wharves, Docks, and Ferries, 1912.

Map of Delaware River Wharves. Department of Wharves, Docks, and Ferries, 1914.

## **Collections**

Archives of Alesker, Reiff and Dundon, Architects

City of Philadelphia Archives: Photograph Collection.

Free Library of Philadelphia: Print and Photograph Collection.

Library Company of Philadelphia.

Philadelphia Historical Commission.

Temple University Urban Archives: *Philadelphia Bulletin* Collection.





Fine Arts Library  
University of Pennsylvania  
Please return this book as soon as you  
have finished with it. It must be re-  
turned by the latest date stamped below.

~~FINE ARTS LIBRARY  
MAY 19 1999~~  
~~FINE ARTS LIBRARY  
MAY 19 1999~~  
~~FINE ARTS LIBRARY  
APR 1999~~  
~~FINE ARTS LIBRARY  
MAY 19 1999~~

~~FINE ARTS LIBRARY  
OCT 31 1995~~  
~~FINE ARTS LIBRARY  
OCT 1 1995~~

~~FINE ARTS LIBRARY  
SEP 2 1996~~  
~~FINE ARTS LIBRARY  
SEP 2 1996~~

~~FINE ARTS LIBRARY  
MAR 30 2008~~  
~~FINE ARTS LIBRARY  
MAR 30 2008~~  
~~FINE ARTS LIBRARY  
MAY 1 2007~~

W

M-608

FINE ARTS LIBRARY  
UNIVERSITY OF PENNSYLVANIA  
OCT 9 1997  
UNIV. OF PENNSYLVANIA

3 1198 04977 2135



N/1198/04977/2135X

3 1198 04977 2135



N/1198/04977/2135X

